

THE IRON AGE

THURSDAY, NOVEMBER 10, 1892.

The Charles Hillman Ship and Engine Building Company.

In consequence of the revolution which has taken place within recent years in naval construction, many old established shipbuilding concerns who have hitherto confined their efforts to the building of wooden vessels have now turned their attention to iron and steel shipbuilding.

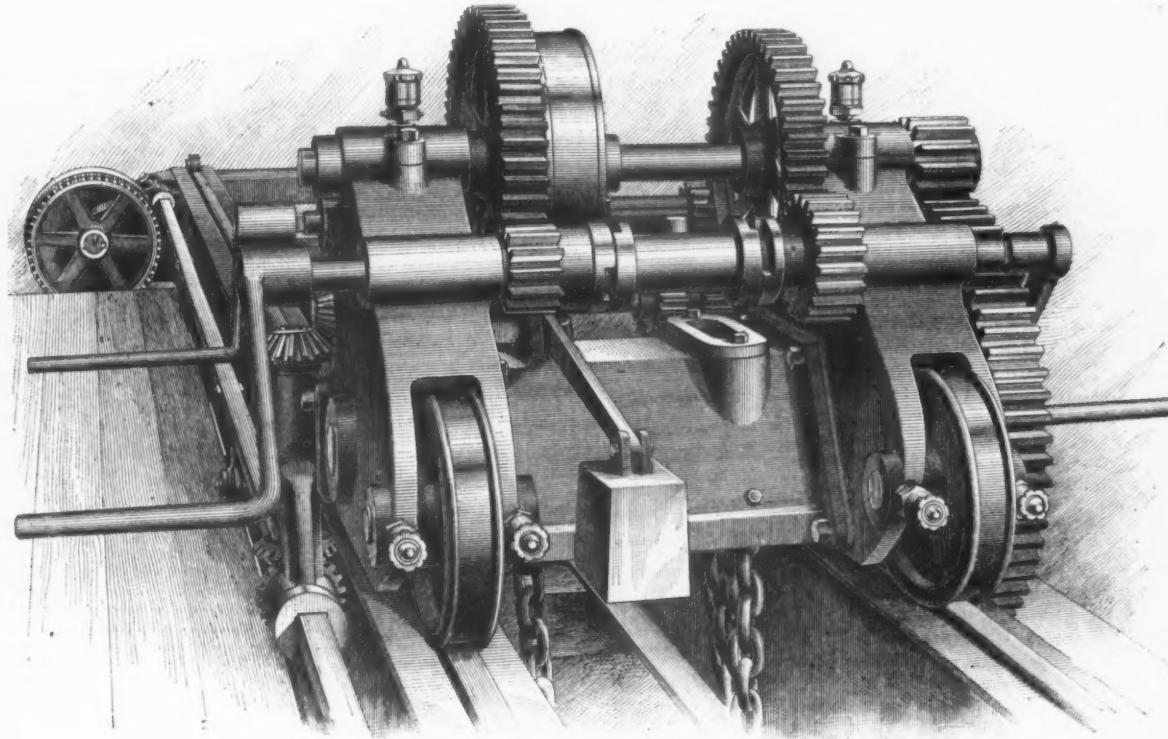
Among other firms so situated are the Charles Hillman Ship and Engine Building Company, Philadelphia, who have long been known in the business. Their shipyard and marine railway on the Delaware have been located in their present quarters since the middle of the century. Originally founded by John Birely,

new enterprise is now on the stocks in the shape of an iron screw passenger and freight steamer for the Ericsson Line, plying between Philadelphia and Baltimore by way of the Delaware & Chesapeake Canal. She is a boat 210 feet long over all, 24 feet in beam and 10½ feet deep. The engines, which have been built at the yard, are of compound type, with cylinders 20 inches low and 40 inches high pressure, and 28 inch stroke. She will be ready for launching early in December. The company have also a contract for the construction of an iron double-ended screw ferry steamer for the Delaware. They anticipate securing a fair share of business in their new line, and have made very ample preparation for it in the recent additions to their plant. Although not as

Five-Ton Hand Traveling Crane.

Conditions made it necessary to operate a crane from above, and not by suspended chains as usual, and that two men should easily be able to raise the full load of 10,000 pounds. The height of lift is 20 feet, span center to center of rails 39 feet 6 inches, and the clear height from base of tramway rail to base of truss is 6 feet 6 inches. Pawling & Hamischfeger of Milwaukee, Wis., met these requirements by the design shown in the accompanying engravings.

The bridge consists of two steel beams securely connected at the ends and carried by strong truck brackets and double-flanged chilled wheels which are ground true to size and face and fitted with steel



FIVE-TON TRAVELING CRANE.

the concern was known until war times as "John Birely & Son's Ship Yard." In 1864 the original firm was extended by Charles Hillman, the head of the present establishment, joining it in conjunction with a Mr. Streaker, the concern being then known as Birely, Hillman & Streaker, in which form it continued until four years ago, when Charles Hillman bought out the interests of his partners, and carried on the whole as Charles Hillman & Co., the company being incorporated under their present title in the current year. During the late war the shipyard was very actively employed in the construction of gunboats for the Federal Government; a considerable number of these vessels having been turned off their slips within a very short time. This circumstance gave the yard a prestige which it has always maintained since. Recognizing the modern improvements in marine architecture, the Charles Hillman Company have within the last few months provided themselves with all the necessary facilities for iron shipbuilding; and their initial effort in the

yet of very large extent it is complete in every respect and thoroughly efficient for its purpose. A two-story building 100 x 36 feet has been erected, the lower floor of which is used as a machine erecting shop, well equipped with modern tools by the best makers. The upper floor is the joiners' and pattern shop, all the fittings for the vessels being made on the spot. A very fine molding loft, 150 feet long and 38 feet wide, has also been added, as well as a capacious furnace, which is stated to be able to heat a bar of iron 46 feet long to a cherry red in six minutes. It is also adapted to heating sheets up to 6 feet in width. Some large tools have been lately added to the plant, including a massive pair of rolls capable of working a plate of iron 16 feet wide; also a heavy counter sinker, punch and shears, and a planer for plate edges, which are equal to almost any work that could be required. The officers of the Charles Hillman Company are Chas. Hillman, president; B. G. Hillman, vice-president; Jas. Hillman, secretary, and J. J. Hillman, treasurer.

axles and bronze boxes. Two of these wheels are fitted with gears and driven by pinions in a square cross shaft carried at one side of the bridge, as shown. Considerable lateral stability is given to the bridge by the two side platforms, which are made and attached in a manner to secure this object. The trolley is fitted with two sets of hand cranks: one set to travel the bridge and trolley and the other for hoisting, and in such a manner that the cranks clear one another. Like the bridge, the trolley is also carried by chilled wheels ground true to size and fitted with steel axles, brass bushes and grease cups, as shown. Two of these wheels are coupled together and geared to the rear hand shaft, and by means of a sliding sleeve either the trolley-travel or the bridge-travel gears may be operated. The hoisting train is arranged for two speeds of hoist in the manner shown; the change from one to the other being made by sliding a clutched sleeve into the large or small pinions. The second shaft is provided with a self-sustaining brake, and the load may be either lowered by hand or

allowed to run down more or less quickly by pulling the brake lever. The design of the trolley secures great strength with as little weight as possible and at the same time long and well-supported bearings for every shaft and journal. The hook block is entirely of steel, with the exception of the sheave; this is fitted with a graphite bushing, and the hook nut rests on a graphite washer so that it may swivel freely at all times.

SHIPBUILDING NOTES.

Launch of the "Olympia."

By Telegraph.

SAN FRANCISCO, November 5.

The protected cruiser No. 6, known as the "Olympia," after the capital of Washington, was launched at 11:25 to day from the yards of the Union Iron Works. The "Olympia" is not only the largest ship that has ever been launched on the Pacific Coast, but she is also the largest of her type in the United States Navy.

This is the vessel that was authorized by the same act of Congress that appropriated the money for the construction of the "Cincinnati." The limit of her cost was put at \$1,800,000, exclusive of the cost of the armament or of any premiums that she may earn because of increased speed over the guarantee. The bid of the Union Iron Works was \$1,796,000 for the vessel, machinery, fitting and placing the armor. The ship is of a well-known type, but exceeds in size any of her predecessors in the United States Navy, and also the majority of the foreign vessels of her class. Her principal dimensions are: Length on load water line, 340 feet; breadth of beam, 53 feet; normal mean draft, 21½ feet; estimated horse-power, 13,800; guaranteed sea speed on official trial, 20 knots; estimated cruising speed, 19 knots; endurance at 10 knots speed, 13,000 miles.

The propelling engines are rights and lefts and are of the vertical inverted cylinder, direct-acting, triple expansion type, each with a high-pressure cylinder 42 inches, an intermediate cylinder, 59 inches, and a low-pressure cylinder 92 inches in diameter, the stroke of all pistons being 42 inches. It is estimated that the collective horse-power of the engines, making about 129 revolutions a minute, will be 13,500. All shafting is hollow and is made of mild open-hearth steel. The crank shafts are made in three interchangeable and reversible sections. The propellers are of the right and left setting and are to be of manganese bronze or of approved equivalent metal. There are four double ended and two single ended steel boilers of the horizontal and return fire tube type, all constructed for a working pressure of 160 pounds per square inch. They will be placed in four watertight compartments, and there will be two athwartship firerooms in each of the boiler compartments. The forced draft system will consist of one blower for each fireroom, discharging into an air-tight fireroom.

The main battery will consist of four 8-inch breech-loading rifles and ten 5-inch rapid-firing guns. The 8 inch rifles will be mounted on the main deck forward and aft in the center line on barbettes 4 inches thick, with inclined turrets of the same thickness over the guns. These guns will be about 10 feet above the main deck and 26 feet above the water line, and will have very great train. The 5-inch guns will be mounted in the superstructures in such a way that four of them can fire right ahead, five on either beam and four astern. The secondary battery will consist of fourteen 6 pounder and six 3-pounder rapid-firing guns, four Gatling guns and six torpedo tubes.

Launch of the "Cincinnati."

To-day the protected cruiser "Cincinnati" is to be launched at the Brooklyn Navy Yard. The "Cincinnati" was authorized by an act of Congress approved on September 7, 1888, with the provision that she should have a speed of at least 19 knots, and that the cost should not exceed \$1,100,000. The advertisements for bids were first published on June 14, 1889, and when the bids were opened, on August 22, it was found that none of them complied with the requirements of the act, but all were much in excess of the limit of cost specified. The only alternative for the Navy Department was to build her at a navy yard.

The dimensions of the "Cincinnati" are: Length on load water line, 300 feet; breadth of beam, 42 feet; draft at cruising trim, 18 feet; displacement, with 60½ tons of nickel steel armor, 3183. The keel is of two thicknesses of steel, and the hull is divided into numerous water-tight compartments by transverse and longitudinal bulkheads. The space between the two

latter to be used as auxiliaries—and these will be placed in four water-tight compartments. The working steam pressure is to be 160 pounds to the square inch.

The battery of this vessel will consist of ten 5-inch rapid-firing guns, one 6-inch breech-loading rifle, eight 6-pounder and four 1 pounder rapid firing guns, two Gatling guns and six torpedo launching tubes.

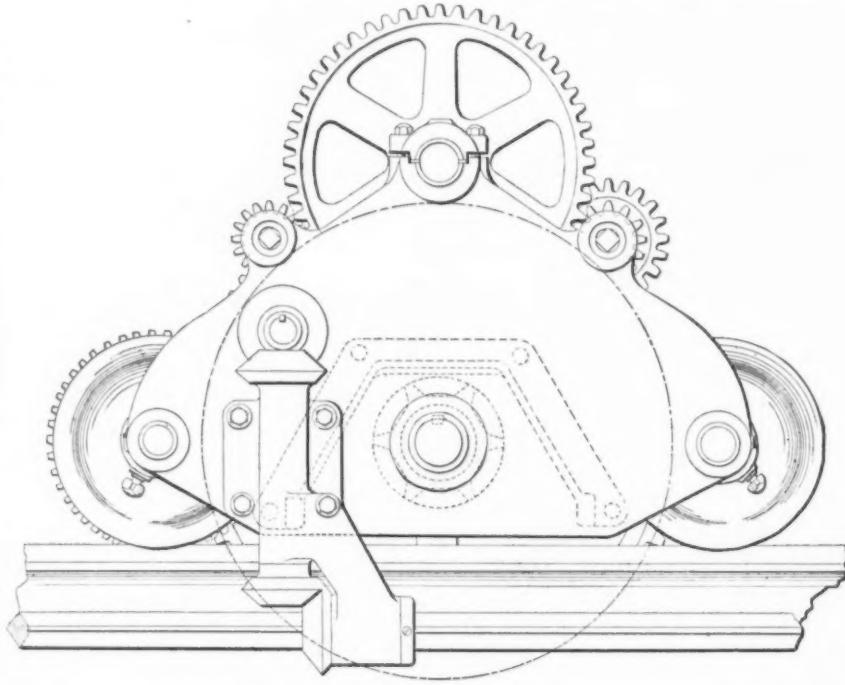
Armor for the Cruiser "New York."

The Navy Department has been notified that the Carnegie Steel Company have completed about 200 tons of armor plate for the cruiser "New York" and will make the delivery as soon as the result of the test plate is known.

This plate has been sent to the Indian Head proving grounds. It is an 8 inch nickel steel plate. The group it represents is for the side armor of the "New York."

Test of Armor Plates.

The recent test of 14 inch Bethlehem armor plates at the Indian Head proving



Side Elevation.

FIVE-TON TRAVELING CRANE.

hulls will be filled with woodite, a substance similar to cellulose, for counteracting the dangerous effect of projectiles, especially those charged with high explosives. Woodite has a base of India rubber and is especially prepared to keep its elasticity.

The machinery and boilers of the "Cincinnati" were designed by the officers in the Bureau of Steam Engineering at Washington, and they have been built under the supervision and direction of Chief Engineer J. H. Chasmer and Past Assistant Engineer George H. Kearney. It was intended to mount them in the vessel before she should be launched, but the recent fire at the New York Navy Yard, in which the engines were damaged in some of their parts, made necessary a change in the original plan. At the test of the engines a few days before the fire they were found to work most satisfactorily. They are of the triple-expansion type, in two sets, each of which has two low-pressure cylinders 57 inches in diameter, one intermediate cylinder of a diameter of 53 inches and one high-pressure cylinder 36 inches in diameter; the common stroke is 33 inches. One set of engines will be attached to each of the twin screws. The screws are now being made at the yard, of manganese bronze. There are four double ended boilers and two single ended boilers—the

grounds confirms the belief that the plates furnished to our battle ships are the best in the world, but also puts in a favorable light our American projectiles. Shots were fired by the 10-inch gun, as provided by the contract, and all the heavy projectiles rebounded, being unable to perforate the plate. The projectiles were all driven back, but while the Holtzer shells suffered from the impact, the Carpenter shells, made in this country, came out in good shape and carried off the laurels from their foreign competitors. This test of 14-inch armor, like the preceding one, shows better results than could have been hoped for a few years ago. Great interest will attach to the approaching trial of the 17-inch turret armor of the battle ships. Against this a 12 inch gun will be used, three shots being fired, with a striking velocity of 1332 feet per second.

Machinery for the "Brooklyn."

The Bureau of Steam Engineering has completed the designs for the machinery of the new armored cruiser "Brooklyn," the sister ship of the "New York." Although somewhat similar to the machinery of the "New York," the designs for the "Brooklyn" are in many respects an improvement over the former vessel.

The designs call for four sets of propelling engines, placed in four water-tight

compartments, separated by bulkheads. There will be two sets of engines on each shaft. The crank shafts of the two sets of engines for each propeller are so arranged that by means of an easily operated coupling the forward set may be quickly and easily connected with or disconnected from the after one at will. For ordinary cruising the after set attached to each shaft will be used. The engines will be of the vertical inverted direct-acting triple-expansion type, each with a high pressure cylinder 32 inches; an intermediate-pressure cylinder 47 inches, and a low-pressure cylinder 72 inches in diameter, the stroke of all pistons being 42 inches.

It is estimated that the collective indicated horse power of propelling, air pump and circulating pump engines should be about 16,000 when the main engines are making about 129 revolutions per minute. The high-pressure cylinder of each engine will be forward and the low-pressure cylinder aft. The crank-shafts will be made in three sections. All shafting will be hollow. There will be one condenser for each propelling engine. Each main condenser will have a cooling surface of about 5681 square feet, measured on the outside of the tubes, the water passing through the tubes. For each set of pro-

starboard side. Each of the double-ended boilers will have eight corrugated furnace flues, 3 feet 4 inches internal diameter.

The total heating surface for all the boilers will be about 33,353 square feet, measured on the outer surface of the tubes, and the grate surface 1016 square feet. There will be three smoke pipes, each 100 feet high above grate of lower furnace. The forced draft system will consist of two blowers for each fireroom, the blowers discharging into an air-tight fireroom.

Work on the "New York."

Owing to delay in furnishing the armor plates, the work on the cruiser New York, at the Cramps' shipyard, has been delayed considerably. The 10-inch plates for the barbettes have not been received. The 4 inch plates for the side belts are being rapidly put in place. The engines and boilers are all in place and are being connected. It will probably be early in the year before the vessel is ready for her trial trip.

Random Shop Notes.

At the Stark Machine and Tool Works, Buffalo, N. Y., we recently saw some specimens of superior work in the line of

ing it to $1\frac{1}{2}$ inches. Next the edge around the top was trimmed and a hole punched through the bottom. The final pass to form the completed article, as shown in Fig. 6, turned in the metal around the hole and formed a double band around what we might call the outer edge of the hub, the dimensions then being $2\frac{1}{16}$ inches wide and the folded-in part being $\frac{1}{8}$ inch. These were made for Pratt & Letchworth, carriage manufacturers, of Buffalo, and are intended as bands to be placed on the ends of hubs. The work throughout showed the excellent quality of the metal and of the machine and dies by means of which it was manipulated, and we may state that the turned-in part forming the reinforcing band gave no indication by break or crack that the metal had been handled too severely.

An admirable peculiarity, which we could not help noticing in passing through these works, was the unusual condition of cleanliness, even in the present day of clean shops. Upon inquiry, we were informed that a very simple method had been devised in order to accomplish this. The night watchman is, of course, provided with the usual indicators by means of which the time of his rounds during the night is noted, and, perhaps what is

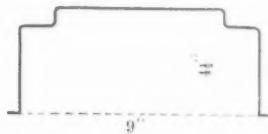


Fig. 1.—Drawn from Copper.

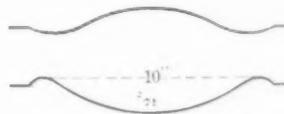


Fig. 2.—Drawn from Galvanized Iron.



Fig. 3.—Steel Hub Band, First Pass.



Fig. 4.—Steel Hub Band, Second Pass.



Fig. 5.—Steel Hub Band, Third Pass.



Fig. 6.—Steel Hub Band, Final Pass.

RANDOM SHOP NOTES.

propelling engines there will be two independent double-acting horizontal air pumps, each worked by a single horizontal steam cylinder.

The main circulating pumps will be of the centrifugal type, one for each condenser, worked independently. Each after engine room will have an auxiliary condenser of sufficient capacity for one-half the auxiliary machinery, each condenser being connected with all the auxiliary machinery. Each of these condensers will have a combined air and circulating pump.

There will be five double-ended main and two single-ended boilers (to be used as main or auxiliary boilers) of the horizontal return fire tube type, all to be made of steel. All the boilers will be 16 feet 3 inches outside diameter. Four of the double-ended boilers will be about 18 feet long, and one will be 19 feet $1\frac{1}{2}$ inches long. The two single-ended boilers will be 9 feet $4\frac{1}{2}$ inches in length, all constructed for a working pressure of 160 pounds to the square inch. The boilers will be placed in three water-tight compartments, each compartment containing two athwartship firerooms. Two double-ended boilers will be placed in the forward and two in the after compartment. In the middle compartment the larger double ended boiler will be placed on the port side and two single ended boilers will be placed back to back on the

drawing sheet metals. Fig. 1 shows a shell 9 inches wide by $4\frac{1}{2}$ inches deep, drawn at a single pass from 16 ounce copper. The peculiarity of this specimen lies in the fact that when it came from the machine the surface was perfectly smooth and was ready for the buffing wheel. These are drawn at the rate of 6000 a day. The quality of the work is due almost entirely to the superior finish of the dies, and, of course, the necessarily close fitting and accuracy of the machine doing the work.

The next drawing, Fig. 2, represents work in galvanized iron, the finished piece being a dome measuring 10 inches wide by 2 inches at the deepest part. This work was done in a single action back-geared power press, and we were informed that it was the first time such a shape had ever been stamped with less than three passes. The upper line shows the first pass, an annular and shallow curve being sunk in the flat about half way between the edge and the center. In the next pass the central raised portion was forced downward, forming the perfect curve of the dome, as shown in the lower line.

The next four drawings show the method of making a steel hub band, the work being done in an ordinary draw press, from a disk of No. 18 sheet steel. At the first pass a cup was formed $2\frac{1}{8}$ inches wide $\times 1\frac{1}{8}$ inches deep, the next pass narrowing the cup to $2\frac{1}{2}$ inches in width and deepen-

ing it to $1\frac{1}{2}$ inches. Next the edge around the top was trimmed and a hole punched through the bottom. The final pass to form the completed article, as shown in Fig. 6, turned in the metal around the hole and formed a double band around what we might call the outer edge of the hub, the dimensions then being $2\frac{1}{16}$ inches wide and the folded-in part being $\frac{1}{8}$ inch. These were made for Pratt & Letchworth, carriage manufacturers, of Buffalo, and are intended as bands to be placed on the ends of hubs. The work throughout showed the excellent quality of the metal and of the machine and dies by means of which it was manipulated, and we may state that the turned-in part forming the reinforcing band gave no indication by break or crack that the metal had been handled too severely.

In connection with the office is conducted a small printing establishment, provided with all necessary type and a hand press, for the printing of such circulars as may be necessary in the business. The introduction of this plant has given much satisfaction, as it has been found that circulars can be quickly gotten out, can be printed in the necessary quantity, and can, whenever required, be quickly duplicated. It has further been calculated that it has been at least self-supporting if not cheaper than outside work, besides being more convenient.

The Chicago, Rock Island & Pacific Railroad Company announce that hereafter the rate from Chicago to Wyoming points on cast-iron pipe, including couplings and connections, in carload lots, will be 74 cents less than class B rates, from Peoria 64 cents less than class B, and from Mississippi River points 5 cents less. On wire, wire staples, nails and spikes (except copper), fifth-class rates will govern straight or mixed carloads.

The First Steel Caisson in the United States.

The Park Department of New York recently let a contract to the Passaic Rolling Mill Company of Paterson, N. J., for the building of a drawbridge over the Harlem River on the site occupied by the old McComb's Dam bridge. A sub-con-

tract was let to Sooysmith & Company of New York for the foundations for the end and center piers. The drawbridge is to be 415 feet long and 66½ feet wide, and have a clear opening each side of the pivot pier of 165 feet, the distance between the bulkhead lines to be 400 feet, this width having been determined by the Government in their work on the Harlem River improvement. The clear height is to be 28 feet above high water.

The most peculiar feature connected with the construction of the bridge is the employment of steel caissons in place of wooden ones, this being the first time a

D. E. Moran, of the Sooysmith Company, and are now being sunk.

There is nothing unusual in the method of sinking, the roof of the caisson, as indicated in the accompanying half-plan, being provided with the usual air shafts for men and supplies and for the removal of excavated material. Upon reaching the necessary depth the caisson will be filled with concrete. The caisson for the south

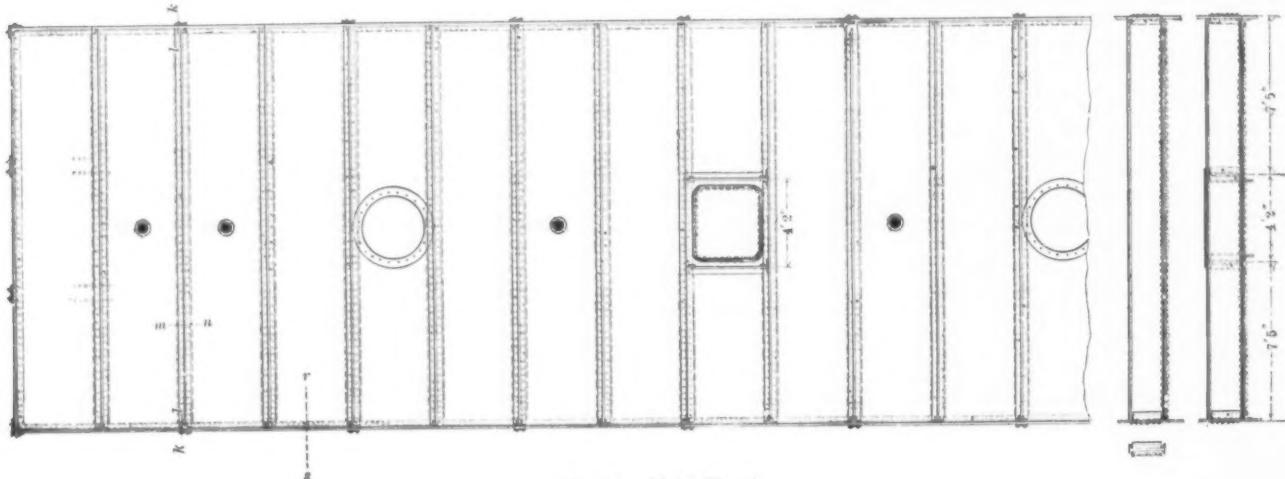


Fig. 1.—Half Plan.

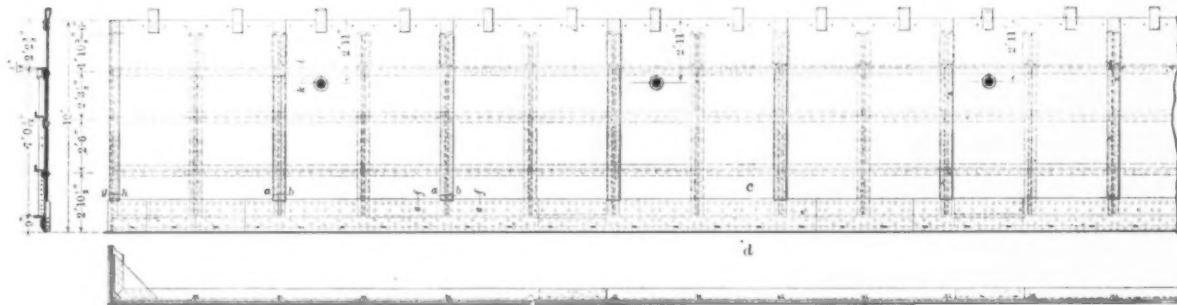


Fig. 2.—Half Side Elevation.

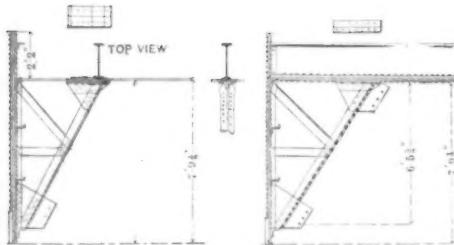


Fig. 3.—Vertical Section End Wall.

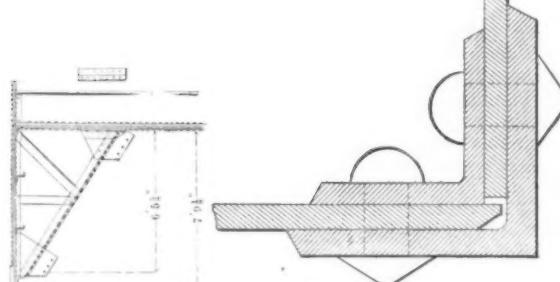


Fig. 4.—Vertical Section Side Wall.

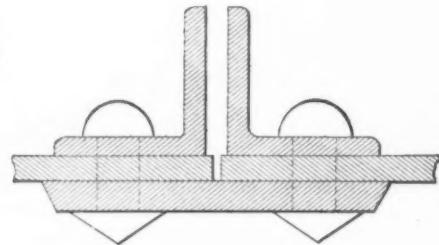


Fig. 6.—Section on g h of Fig. 2.

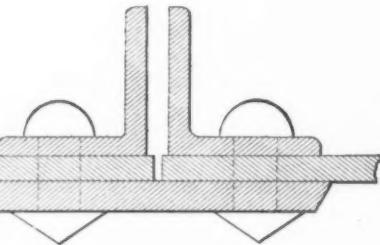


Fig. 7.—Section on a b of Fig. 2.

THE FIRST STEEL CAISSON IN THE UNITED STATES.

The most important consideration leading to the adoption of steel for the caissons was the fact that wooden caissons, in order to clear the prescribed bulkhead lines, would have added materially to the length of the bridge, the thickness of the side walls accounting for this. By employing steel this difficulty is obviated, since the walls are but $\frac{1}{4}$ inch thick and the caissons can then, therefore, be sunk on the bulkhead line and the masonry erected on the line, making the overlap of the bridge at each end but $7\frac{1}{2}$ feet beyond that called for by the distance between the piers. These caissons were designed by

pier consists of a rectangular steel box, measuring 100 x 19 feet, with a clear inside height of 7 feet 9 $\frac{1}{2}$ inches. The top is divided into panels, as shown in the plan, by means of steel I-beams placed across the top. The side walls are stiffened by inside brackets arranged as shown in Figs. 3 and 4. Details of the connections and joints are plainly brought out in the remaining figures. All the rivets have boiler heads on the outside. The caissons were built and assembled at the works of the Passaic Rolling Mill Company, were then taken apart and carried to the Harlem River, where they were again assembled and

brought into position. The bridge itself will be operated by steam through two pinions engaging with a rack on the pivot pier. In starting the bridge for opening, the work of the engine will be augmented by two hydraulic jacks, one placed at each end, and in closing the bridge will be started by a similar arrangement of hydraulic jacks on the fender pier. The work is in charge of A. P. Boller, the well-known bridge engineer, who designed the bridge just north of this for

State contract for 35,000 tons of steel rails, the next lowest tender being an English firm.

Time of Transit Across the Atlantic.

A comparison of the time of transit of mails in 1887 with that of 1892 shows the increase in speed of the Atlantic steamers. In 1887 the fastest average during the year between New York and London was made

Guion Line made an average of 205.3 hours with the "Alaska" in 1887, but in 1892 the same steamer only made an average of 214 hours. The fastest average from New York to Paris was made in 1887 by "La Bourgogne" of the General Transatlantic Line, 202 hours. In 1892 "La Touraine" of the same line reduced the average to 198.5 hours.

The San Francisco Chamber of Commerce advocates the establishment of a

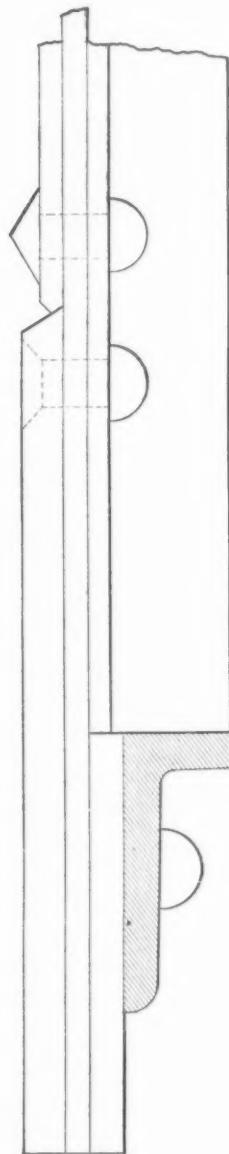


Fig. 5.—Section on c d of Fig. 2.

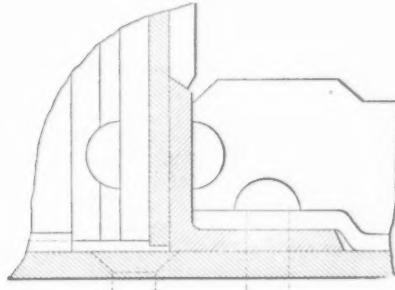


Fig. 8.—Section on k l of Fig. 1.

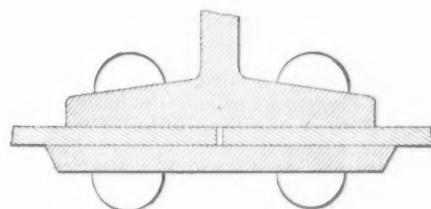


Fig. 9.—Section on m n of Fig. 1.

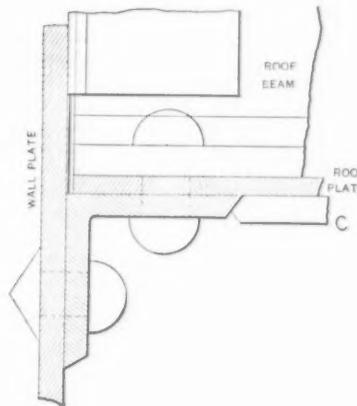


Fig. 10.—Section on r s of Fig. 1.

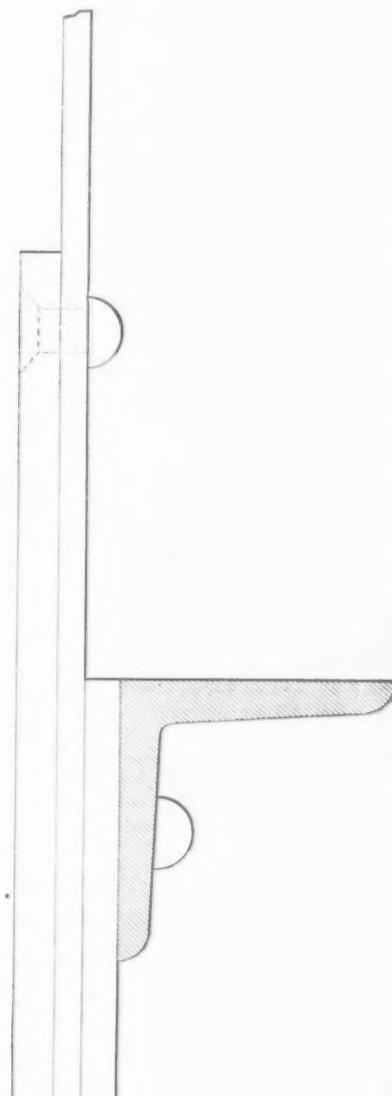


Fig. 11.—Section on e f of Fig. 2.

THE FIRST STEEL CAISSON IN THE UNITED STATES.

the New York & Northern Railroad, and who acts as consulting engineer.

The keel has been laid in Roach's shipyard for the mammoth steamer ordered for the Fall River Line. The new boat will be 450 feet long. The W. & A. Fletcher Company of Hoboken were given the entire contract, the same as the Fall River management did by them in the case of the "Pilgrim" and "Puritan." This is the largest moneyed contract ever awarded an American firm for building a single vessel outside of the navy. The name suggested for her is "Columbus."

The great Belgian engineering company at Seraing have just scored an important success in tendering for a Roumanian

by the Cunard steamer "Umbria" in 187.5 hours. In 1892 the average time of the same steamer was 184.5. The Inman steamer "City of Chicago" made an average during 1887 of 241.6 hours. In 1892 the "City of New York" of the same line made an average of 179.4 hours. In 1887 the fastest time made by the White Star Line was an average of 219.8 hours by the "Britannic." In 1892 the "Teutonic" of the same line made an average of 175.5 hours. The Hamburg American Line made an average of 240.7 hours in 1887 with the "Hammonia," but in 1892 the "Fuerst Bismarck" of that line reduced the average to 171.3 hours. In 1887 the fastest average of the steamers of the North German Lloyd Line was 199.3 hours by the "Trave." In 1892 the "Havel" of this line reduced the average to 182.8 hours. The

first-class line of ocean freight steamships of large tonnage to run between that port and points on the Atlantic Coast, the vessels to be built of steel, fitted with the most modern engines, and adapted to service by the Nicaragua Canal, which the Californians are "confident will be completed in the near future."

Prof. George C. Baker's new submarine boat, which was recently constructed in Detroit for the torpedo service, was towed into Chicago after a perilous voyage. The boat is 40 feet long, 9 feet wide and 14 feet deep. She weathered the storm by being lowered about 10 feet below the surface of the lake and was raised every two hours to enable those on board to obtain a supply of fresh air.

The Foundrymen's Association.

The first annual meeting of the Foundrymen's Association was held on Wednesday evening, November 2, at the Manufacturers' Club, Philadelphia, Francis Schumann, the president, in the chair. There were present, of the Philadelphia members and guests, the following:

Francis Schumann, Tacony Iron and Metal Company.
Walter Wood, R. D. Wood & Co.
Ed. Bureau and Eduard Bureau, Bureau Bros.
Justice Cox, Jr.
H. C. Vansant, Morris Tasker & Co., Limited.
E. E. Brown, E. E. Brown & Co.
Josiah Thompson, I. S. Cassin & Co.
W. N. Barrows, G. S. Emerick & Co.
P. Kearns, Stuart & Peterson Company.
Thomas Glover, Glover Bros.
Stanley G. Flagg, Jr., Stanley G. Flagg & Co.
Howard Bing, James Bing.
Arthur W. Howe.
C. R. Baird, Chamberlain, Turney & Baird.
D. J. Matleck, I. P. Morris Company.
Ralph H. North, North Bros. Mfg. Company.
Chas. T. Holbrook, Juniata Furnace & Foundry Company.
J. Sellers Bancroft, Wm. Sellers & Co., Inc.
Wm. Adams and W. H. Hunt, Wm. Adams & Co.
Thos. Hobson, *The Iron Age*.
Hy. Ruhland, Hy. Ruhland & Co.
Wm. Wark, Dienelt & Eisenhardt.
Jno. Birkinbine.
Theo. B. Rohrman.
A. C. Mott and W. H. Pfahler, Abram Cox Stock Company.
H. W. Butterworth, H. W. Butterworth & Sons.
A. B. Paxson, H. M. Bouger and Howard Evans of J. W. Paxson & Co.

There were present also from other cities:

Robert J. Register, J. Register & Sons, Baltimore.
E. E. Durant, G. F. Warner Mfg. Company, New Haven, Conn.
P. D. Wanner, Meller Foundry and Machine Co., Reading, Pa.
T. B. Harkins, T. B. Harkins Foundry Company, Bristol, Pa.
W. H. Green, and W. H. Green, Jr., Vulcan Works, Chester, Pa.
Edward Betts, Betts Machine Company, Wilmington, Del.
John Hanes, Woodstown, N. J.
H. M. Kolb, Lansdale Iron Works, Lansdale, Pa.
W. H. Fairlamb, Harlan & Hollingsworth Company, Wilmington, Del.
John D. Newbold, R. S. Newbold & Son, Norristown, Pa.
George A. Messick, Pusey, Jones & Co., Wilmington, Del.
Alfred D. Poole, J. Morton Poole Company, Wilmington, Del.
C. Kirchhoff, editor *The Iron Age*, New York.
H. F. Pickels, Wilmington Pipe and Foundry Company, Wilmington, Del.
E. M. Mumford of Henry R. Worthington, Elizabethport, N. J.
J. W. Todd, Diamond State Iron Company, Wilmington, Del.
Alexander W. Fyfe, of Bell & Fyfe Foundry Company, Brooklyn, N. Y.

After the adoption of the minutes of the preceding meeting, which were read by the secretary, Howard Evans of J. W. Paxson & Co., the report of the Executive Committee was presented. It dealt largely

with a proposal to exchange among the members information concerning credits, but the subject was not finally disposed of. The relations between the association and the Manufacturers' League and the Chamber of Commerce of Philadelphia to the railroads were explained by the secretary.

Some time since the Foundrymen's Association requested the Department of State to secure through the consular officers of the United States in England, France and Germany information on the following points:

1. Is there any combination, association or understanding among iron-foundry men for the regulation of the selling prices of their product?

2. What are the average wages paid for the different classes of labor in iron foundries?

3. What are the average prices paid by foundrymen for iron, fuel, sand and other materials required by them?

4. What are the average selling prices of the following different classes of iron castings:

a. Loam castings.

b. Dry sand castings.

c. Green-sand castings, composed of light castings, weighing less than 500 pounds, and heavy castings weighing over 500 pounds.

d. Chilled iron car wheels.

e. Cast-iron water and gas pipes.

f. Steel castings.

The association has been advised by Alvey A. Ade, second assistant secretary, that a request to collect the information has gone to the consular officers in the countries named.

Alexander M. Fyfe of Brooklyn gave a report of the prices obtained for castings at Dundee, Scotland. As a result of a combination among the founders the prices are higher than those prevailing in this country, although wages are much lower and pig iron is about \$6 per ton less. Coke costs about as much, while sand is a little higher. The result of the conditions at Dundee is that a concern employing only 14 molders made a profit of \$15,000 a year. The prices received in Dundee excited considerable comment. Among other data reported it was stated that the lowest figure on record in this country thus far is that made in the sale of about 10,000 tons of yokes and sheaves for the Baltimore cable road, being \$28 per gross ton delivered, Baltimore, or 1.25 cents per pound, taken by a Lehigh Valley foundry.

The following officers were then elected for the ensuing year:

President—F. Schumann, Tacony Iron and Metal Company, Philadelphia.

Vice-President—Thomas Devlin, of Thomas Devlin & Co., Philadelphia.

Treasurer—Josiah Thompson, of I. S. Cassin & Co., Philadelphia.

Secretary—Howard Evans, of J. W. Paxson & Co.

Executive Committee—Walter Wood, R. D. Wood & Co., chairman; H. C. Vansant, Morris Tasker & Co., Limited; Thomas Glover, Glover Brothers; L. B. Whitney, of A. Whitney & Sons; Stanley G. Flagg, Jr., of S. G. Flagg & Co.

Francis Schumann then read the following:

PRESIDENT'S ADDRESS.

This, the first anniversary of our association, is a fitting occasion for a retrospect of the reasons for its formation, its progress and an expression of views of what is essential toward its efficiency in promoting our mutual welfare.

In the course of the last few years, the condition gradually developed that the foundry industry was suffering from abnormal competition resulting in serious depressions in the price for the product. A growing spirit of reserve, distrust if not animosity, between foundry operators, due probably to the rapidly changing con-

ditions in modes and methods of competition in recent years, tended to separate them and keep them apart. In no kindred industry was there so little intercourse. While their employees were fraternizing and exchanging views relating to their mutual advancement and protection, the operators persisted in a rigid, suspicious behavior to one another. They heard of each others' doings through their employees or customers only, who, having solely their own interest at heart, soon discovered how to advantageously utilize this feeling of distrust and want of harmony.

Only one result could be expected from such a condition—a condition existing at a time when in our country, at least, we were undergoing an adjustment between production and consumption so critical that only by the exercise of concerted action could prices be maintained in allied industries. The foundryman availed himself of no such safeguards; he battled singly and alone, bitterly complaining of the continual cutting of prices, which was lessening his profits more and more.

The future looked gloomy. Why was this so? Exercising all his energy, experience and economy, he could not exist at the prices paid for his product. While other industries were subject to this same adjustment of supply and demand, they still maintained prices that were, under the circumstances, satisfactory.

While the wages paid by foundrymen were the same, or nearly so, as in previous years when profits were better, they were not more than those paid by allied industries. The cost of raw material was even less than in the more profitable years. The anxiety for the future and a dawning knowledge that by concerted action only could serious results be averted, finally brought us together and led to the formation of this association—an association which, let us hope, will continue to exist as long as iron is melted.

We have come together to foster and promote mutual respect, friendship, reliance and confidence, which are the elements of that unity of action needed for our general welfare. So far, the results have been most satisfactory; we are making converts rapidly; our membership roll has been greatly augmented; applications for membership are presented at nearly every meeting, and we have representatives in all sections of the country. The most serious doubt, that of numerical strength, has been dissipated.

The purpose of this association being the advancement and protection of our interests, the most vital of which is the maintenance of prices, we naturally look for the causes interfering therewith. Summarizing them, we have: The gradual evolution of the foundries as producers of castings only, distinct and separate from any other industry. Their rapid growth in numbers, lack of cohesion as an industrial body, and consequent weakness to maintain prices. The absolute lack of any code of practice either written or unwritten, qualifying and condemning that which is unfair, unbusiness like or dishonorable in their dealings.

We can correctly divide our industry into two great branches. Of one the product is a standard article, be it a stove, pulley, sash weight, pipe or car wheel, the cost of producing either of which is well understood and known by the respective foundrymen, and for which prices can be readily fixed. The other great branch produces castings so varied in character and often so different from anything preceding that the making of a price is wholly the result of individual judgment, or rather guessing, which may prove good or bad after the work is completed. In this branch of our business, especially among those engaged in the casting of general machinery and building material,

the greatest cutting of prices prevailed. The causes for this were many. In past years our industry was combined with machine shops, more so when on a large scale, only smaller shops doing a repair business, or perhaps manufacturing a specialty, were without foundries, obtaining their castings either from the larger shops or jobbing foundries, which were few in numbers and on a limited scale.

The gradual growth of machine shops without foundries naturally developed the business of the jobbing foundries. This was eminently so in larger business centers, where special machine builders congregated. In time, as the jobbing foundries multiplied to meet the increasing demand for castings, the competition for the work, of course, kept pace, and the older combined shops were crowded out as mere sellers of castings, limiting their foundries to the supply of such castings as were required in the building of their machines, except during dull periods, when they competed with the jobbing foundries, even if at losing prices, to keep up their foundry organization for their legitimate business.

Before the era of jobbing foundries the price of castings was not a factor affecting the welfare of any one; of course, economy was essential, but only so far as it formed a part of the expense in producing a machine, no more than the cost of forgings or machine labor. In fact, the making of castings was not an industry as it is to-day, but merely the product of one of the departments of a machine shop. To-day the prices of castings are fixed by the jobbing foundry, to which the combination shops must adjust themselves, retaliating by becoming a most dangerous cutter of prices when trade is dull. The cutting of prices was not so much due to lack of work as it was to bad guessing and jealousy. The more the bidders the worse the guess. Shrewd buyers, aware of this weakness, went from foundry to foundry until they found the guesser they wanted. Thus it happened that brokers or middlemen could undertake contracts for castings at prices less than those submitted by competitors who were actually engaged in the foundry business—the broker pitting against them the bad guess of some brother foundryman not in the original competition.

Many of these evils can be corrected by a proper code of practice—for example: The issue of a synopsis of the bids after a contract is awarded, and the insistence that bids shall be received and opened at stated time, after which no bid shall be valid. This method is in vogue by the Government and building trades, and has undoubtedly proved a benefit to all concerned. Only by concerted action can we remove these causes, and concerted action must come through this association.

The association should be national, subdivided into chapters located in the various cities and towns, corresponding with each other through this parent organization. Each chapter should be subdivided into sections representing the different branches.

Friendship and mutual respect should be cultivated by the interchange of visits between chapters, making the occasion one of business and pleasure. An annual convention should be held for the transaction of business, recreation and exchange of hospitality.

A monthly or weekly journal should be issued, containing the transactions of the chapters, convention, price-lists, articles of a technical nature, prevailing wages, questions and answers, &c., as is usual for such publications.

Finally, I cannot too strongly urge the importance of suitable topics for discussion at our meetings. If we want our meetings well attended we must be prepared with subjects of interest for discussion. To come many miles to a meeting

and go through a simple routine is not enough.

I hope it will not be long ere our meetings will be looked forward to with anticipations of pleasure and gratification. We cannot be too thankful to those gentlemen who have already furnished us with interesting and useful papers relating to our industry, and nothing can be of greater value for the stability of our society than discussion and debate at our meetings, whether it be a carefully prepared article or thoughts expressed on the spur of the moment. Let us do all in our power to encourage it. With patience and perseverance we cannot fail to ultimately succeed in our aims, and our endeavors will be rewarded by thrift and contentment.

This address was listened to with close attention, and the applause which followed testified to the appreciation of the members. On motion, it was decided to send printed copies of it to the founders throughout the country and to submit it for publication to *The Iron Age*. Howard Evans, the secretary, reported the formation some time since of a very successful foundrymen's association at Pittsburgh, and recorded the achievements of a similar organization at Washington.

The members and guests then adjourned to the handsome roof garden of the club, to partake of refreshments.

The Congdon Brake Shoe Company.

The Congdon Brake Shoe Company have for several years operated an iron foundry at Fifty-ninth and Wallace streets, Chicago, in the manufacture of brake shoes and other castings for railroads. They have recently added a plant for the manufacture of open-hearth and crucible steel castings and are now prepared to furnish castings of all kinds for all purposes, in either iron or steel. The works comprise an iron foundry, steel works, a complete pattern shop and a well equipped machine shop. Nearly all the power used in these works is electric. A Russell engine operates C. & C. dynamos, located in the engine room, from which power is transmitted to the several departments of the works. The machinery in the foundry, a crane in the steel works, and the machines in the pattern shop and machine shop are all operated in this way. Arc lights are provided for the large open spaces and incandescent lights are used around the ovens, core benches and in the passageways.

The iron foundry melts 25 to 30 tons of metal daily for railroad brake shoes and contract work. The Ross-Meehan brake shoes constitute a large part of the output and are made in a multiplicity of patterns, which depend on the ideas of the mechanical departments of the different railroads. The principle, however, is the same in all of the Ross-Meehan shoes. This shoe is composed of a cast-iron body, in which are set small pieces of crucible steel of suitable temper to produce a tire-dressing effect, and so shaped as to apply only to the parts of the tire not worn by the rail and to resist the otherwise rapid wear on the soft iron surfaces. These crucible steel inserts are first cast separately and are then put in place in the mold for the brake shoe, after which the iron is poured and the steel inserts become an integral part of the casting. The peculiarity of the shoe thus compelled the company to undertake the manufacture of steel castings to some extent as well as iron castings. From this step they have gone into the manufacture of steel castings on a more extended scale.

The steel works occupy a separate building, which has been put up with special adaptation to the purposes for which it is

intended. It is a very substantial building, wholly of iron, and is well lighted from the sides and the top. Ventilation is provided through louvers in the deck light on the ridge of the roof. The steel works contain a 15-ton Siemens Martin furnace, as improved by J. A. Herrick of New York, and four 6 pot crucible steel-melting holes, which are heated by a Siemens regenerative furnace. The steel furnaces are located at one end of the building, in front of which passes a railroad track for the receipt of material. Three gas producers designed by Mr. Herrick stand between the crucible furnace and the railroad track. Coal and other materials are transferred from the original cars to narrow-gauge cars of the Hunt Company pattern. These cars can then be run through any part of the works on tracks, or can be hoisted by an electric hoist, either to the level of the open-hearth furnace charging floor on one side, or to the level of the charging floor of the gas producers on the other side. Two of the producers serve the open-hearth furnace, while one producer serves the crucible furnace. The molding floor for steel castings is immediately in the rear of the open-hearth furnace, occupying all that side of the building, while extending from the crucible furnaces are the drying ovens for the molds, annealing furnaces for castings, heating furnaces for blacksmiths, &c. The molding floor is served by two hand jib cranes and one Shaw electric crane, the latter of 30,000 pounds capacity. The electric crane has a sliding boom, the foot of which moves up and down the mast on sheaves, while the top swings forward and back, but always at the same height, being supported in the center by hinged stays and by the heavy chain which communicates motion to it. These works have been arranged so as to save labor as much as possible. The narrow-gauge tracks running through the works have been located with this end in view. The cranes are placed at such points that they can handle all the flasks, ladles and other heavy articles, transferring them easily from floor to cars, or from cars to furnace, &c.

The equipment of the works, it will be seen from this description, will enable the company to furnish castings of any character in either iron or steel that may be desired. Care has been taken in the arrangement of the works to introduce the most modern practice in every respect. The steel casting department has been added within the present year and has been very successful from the casting of the first heat. The general officers of the company are Geo. M. Sargent, president; Jas. C. Davis, secretary and treasurer; Wm. D. Sargent, vice-president and manager; F. W. Sargent, general agent.

It is known that trouble of some kind originated between the manager and the directors of the recent Food Exposition at Madison Square Garden in this city, also that the net receipts failed to realize expectations. Whether the latter was a cause or an effect is not so clear. A version of the difficulty is given by the manager, David Brown, who refers to his earnest endeavors to suppress adulteration and narrates a flagrant instance where poisoned food was palmed off by using one of the series of "no-name fictitious brands." The controversy may assist to arrest the evil complained of.

The Board of Walking Delegates in this city have decided to order a general strike on all buildings in New York and Brooklyn where the electric wiremen are on strike. This takes out nearly all the men employed on the buildings with the exception of the bricklayers.

The McCloud Rolling Processes.

Sidney McCloud of Chicago, a well-known rolling mill superintendent, has invented a method of rolling old steel rails into flat plates, which is now in regular use in several rolling mills, and has proved a success. He has also perfected a process for rolling narrow plates into what he terms "wrapped bars," whereby he secures a bar or round of much greater strength than if made as usual in solid form. These are distinct processes, but they may be combined in one works, as is done by the Peoria Steel & Iron Company of Peoria, Ill. The description which will be given will treat the processes separately, so that the reader may not derive a wrong impression. First is

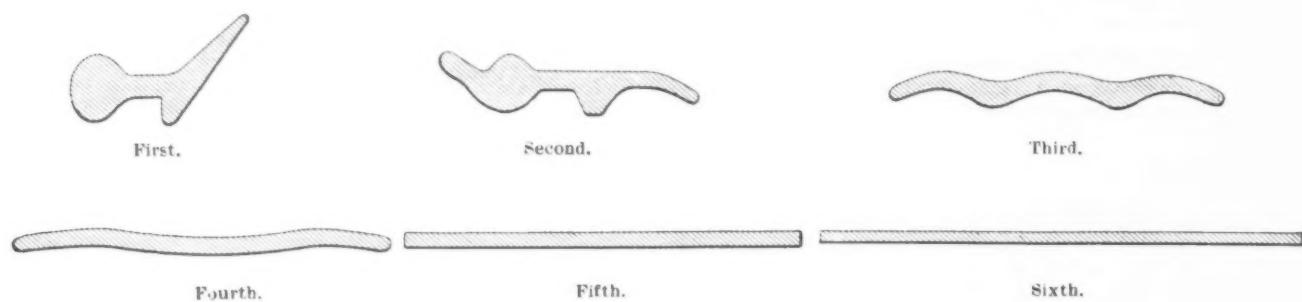
Rerolling Old Steel Rails.

This is a problem which has been attacked by numerous inventors with vary-

Fig. 11 is a view in vertical transverse section through the guide or former on line 11 11 of Fig. 7.

In these drawings, as described by the inventor, A designates the bed of the machine, upon which are mounted suitable rolls, B and C, that will receive the plate of metal as it passes from the reducing rolls, and will give to such plate a concavo-convex shape. The shaft *b* of the roll B is provided with a suitable gear, *b'*, that meshes with the gear *c* upon the shaft *c* of the roll C, these shafts *b* and *c* being suitably sustained by brackets or bearings *W*, mounted upon the bed of the machine. The shaft *c* also carries at its end a ratchet wheel, *c'*, that is driven by means of the pawls *d*, that are pivoted to the driving arms *D*, which are keyed to the ends of the drive shaft *D'*, that is separate from the shaft of the roll C. The purpose in thus driving the rolls B and C by means of a ratchet wheel and pawls is to permit the

tapers therefrom to a narrow point or rib at its extreme inner end. It will be observed that upon each side of this rib *f³*, in the upper part of the former, extend the longitudinal cavities *f⁵* and *f⁶*, the cavity *f⁵* serving to receive one edge of the concavo-convex plate, while the cavity *f⁶* receives the opposite edge of the plate, and these cavities are so arranged and in such shape as to impart a swirl or lap to the concavo-convex plate as it passes through the former. Thus if it be assumed that the metal plate in concavo-convex shape has passed from the rolls B and C and between the guide rolls E into the mouth of the former F, one edge of this plate will be within the groove or channel *f⁵* of the former and the outer edge of the plate within the groove *f⁶* of the former, and it is plain that the plate is forced forward into the former the edge within the groove *f⁵* will be curled over as the plate is advanced into the nar-



Figs. 1 to 6.—Appearance of Rail at Each Pass

ing success. Up to the perfection of the McCloud process the most satisfactory results in the rerolling of old steel rails were obtained by those who slit the rails lengthwise into three parts—the head, the web and the base. These were then heated and rolled into forms for which their size was adapted. In the McCloud process, however, no slitting is required, but the old rail is rolled in its entirety. Only heavy sections of steel rails are taken, from 56-pound rails upward. They are also selected with some care, those having split ends being rejected. The rails are cut into lengths of 3 to 6 feet, heated as usual and are then passed endwise through a set of specially prepared rolls, which gradually flatten both the head and the flange of the rail without permitting any folding over, as the steel would not weld. Only six passes and one heat are required for this operation. The shape of the rail after each pass is shown in the accompanying cuts, Figs. 1 to 6.

The rails are grooved so as to gradually press the extra metal in the head and flange in such a way as to cause it to spread out and not to fold over. The plates thus rolled are about $\frac{1}{4}$ inch in thickness, and from 8 to 10 inches wide, depending, of course, on the section of rail rolled. They are then in a condition to be used for a variety of purposes, such as nail plate, for instance, to which they have been found well adapted. At the Peoria Steel & Iron Company's works the plates form the basis of Mr. McCloud's system of making

Wrapped Steel.

The steel, which is now finding its way into the Western market as a commercial article, is wrapped or rolled lengthwise. Special machinery has been invented for this purpose. Fig. 7 shows a plan view of the apparatus employed.

Fig. 8 is a view in longitudinal section on the line 8 8 of Fig. 7.

Fig. 9 is a front view of the apparatus.

Fig. 10 is an end view of the guide or former.

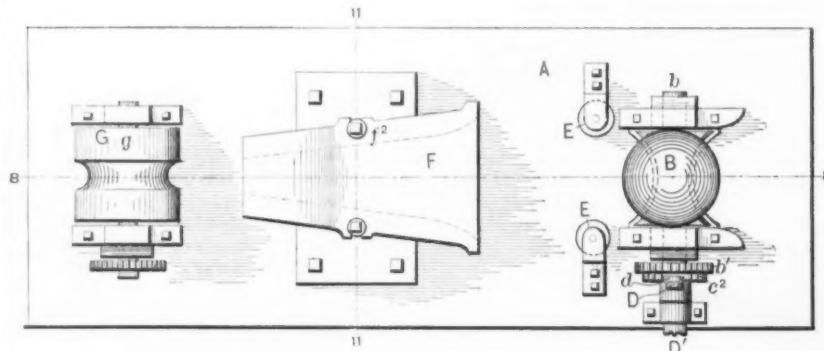


Fig. 7.—Plan View of Apparatus for Making Wrapped Steel.

THE MCLOUD ROLLING PROCESSES.

rolls B and C to move faster than the drive shaft D' in case the final reducing rolls should draw forward the metal plate or bar at a greater speed than that at which the rolls B and C travel, and it is plain that this increased movement of these rolls is possible by reason of the fact that when their speed is increased beyond that of the drive shaft D' the ratchet wheel *c²* can ride under the teeth of the pawls *d*. As the metal plate passes in concavo-convex shape from the rolls B and C, it will pass between the guide rolls E, which will serve to further bend up the edges of the metal plate and direct it into the flaring mouth of the former F. This former F is preferably made of the upper and lower parts, *f²* and *f¹*, suitably bolted together, as at *f²*, and sustained upon the bed A of the machine. The lower part, *f¹*, of the former has an interior of concave shape, its concavity being broad at its mouth and tapering gradually toward its end, and the upper part, *f²*, of the former is provided upon its under side with a guide rib or deflector, *f³*, which is broadened at *f⁴*, at its outer end, and which

rowing part of the former until more or less of a coil is given to the plate before it passes from the small end of the former. When the metal plate thus passes from the small end of the former F, it will be received by suitable reducing rolls, G and G', within the peripheries of which are formed the grooves *g*, of considerably smaller diameter than the body of the plate as it leaves the former; hence the plate, as it passes between the reducing rolls G and G', will be so compressed that its layers will be further wound or coiled upon each other. From the reducing rolls G and G' the plate may be passed into other similar reducing rolls until the metal is compressed into the finished forms desired.

The wrapped metal, before it is reduced in finishing rolls, is termed by the inventor a billet, as it is then in an intermediate state suitable for a variety of forms in finishing. The billet is of the shape shown in the accompanying cut, Fig. 12.

It is heated and otherwise treated precisely as the ordinary billet would be

treated, being rolled in the usual rolls into round, flat or square bars or hoops, Fig. 13. In this operation the layers of metal are merely pressed close together and reduced uniformly in thickness. They are not welded, the design of the inventor being to produce a material composed of independent layers, yet in such close contact with each other that they practically form one piece. The hoops rolled by the Peoria Steel & Iron Company have the same appearance as those rolled from solid steel billets. The seams are scarcely perceptible to the naked eye, and only appear when the hoop is bent over and twisted off, the metal being so tough that this is only done by the application of great

WORLD'S FAIR NOTES.

A Forecast of Next Year's Traffic.

The ceremonies in connection with the dedication of the World's Fair buildings on October 20, 21 and 22 were impressive and memorable almost beyond the power of description, presenting to hundreds of thousands of people new conceptions of the vastness of the exhibition which will open its doors to the universe next May, and demonstrating the wonderful ability and energy which have characterized the great undertaking from the first, says *The Railway Age*. The railways, upon whose ability to carry the crowds in attendance

ess of elevation and only one pair being available exclusively for the through trains to the grounds, still it was able to carry the multitudes who applied with comparatively little delay. General Passenger Agent Hanson writes:

In rough figures we handled on suburban trains on Friday 125,000 people, and about as many on Thursday and Saturday combined. I have not figured up the passengers from the line of road, but think that with the military we must have brought into Chicago for the three days, at a low estimate, 10,000 people.

The Chicago, Milwaukee & St. Paul passenger department gives us this statement:

As near as we can estimate at this time the

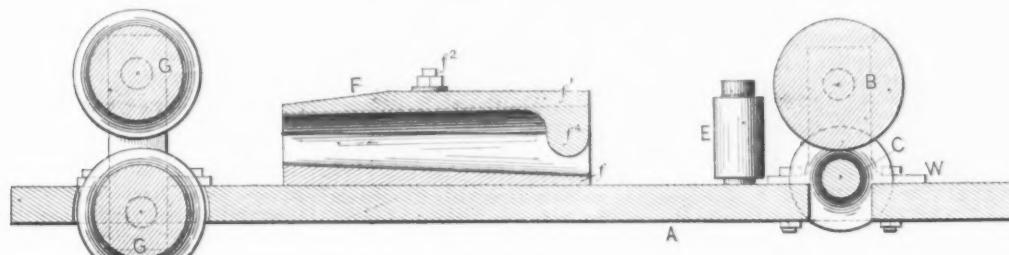


Fig. 8.—Section on Line 8 S of Fig. 7.

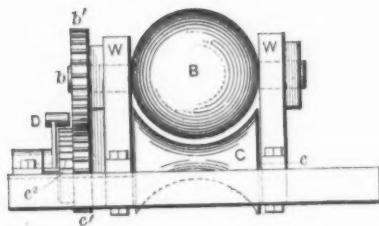


Fig. 9.—Front Elevation.

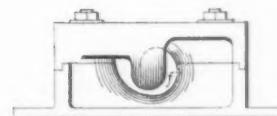


Fig. 10.—End View of Guide or Former.

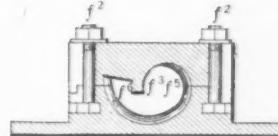


Fig. 11.—Vertical Cross Section on Line 11 11 of Fig. 7.

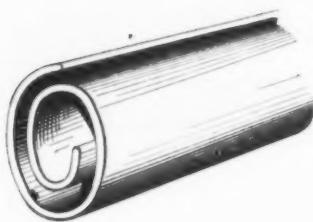


Fig. 12.—The Wrapped Steel Billet.

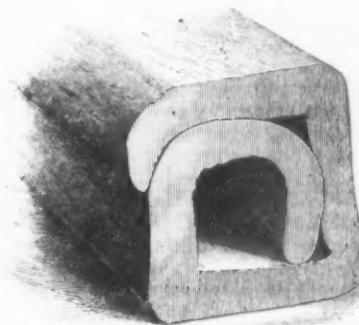


Fig. 13.—Wrapped Square Billet.

THE MCLOUD ROLLING PROCESSES

force. It is claimed by the inventor, whose claim seems to be well founded, that this rolling in layers secures greater strength than if the parts were united by a welding heat, as each layer has a skin of its own. If the outside layer is broken the inner layers are still intact and will resist further strain. In the case of a piece of solid steel, however, the rupture of the skin of the steel is fatal. Coupling pins have been made of this wrapped steel which have endured more severe tests than the best solid pins. For some purposes the inventor rolls bars hollow, his process enabling him to do this with ease. The process is controlled by the McCloud Iron & Steel Company, Room 65, The Rookery, Chicago.

The Iron Steamboat Company earned last year \$362,991 and have a surplus of \$20,000.

depended largely the success of the occasion, proved themselves equal to the great task, and brought to Chicago a far greater multitude than has ever before visited it in the same length of time. We have endeavored to obtain a statement from each road showing the number of passengers carried on these memorable days, but in many cases the station reports have not all been received, and only approximate estimates can be given. The following statements will show in part what the railways accomplished so creditably:

The Pennsylvania lines brought into Chicago in three days 10,210 passengers.

The Illinois Central, which possesses the splendid advantage of an eight-track road direct from the heart of the city to Jackson park, of course did the bulk of the business to and from the fair, and although it labored under great embarrassment on account of its tracks being in proc-

actual number of excursion tickets for the round trip sold on this occasion from points on our line will approximate 10,000. These figures only include actual excursion travel, and have no reference to the large regular travel on one-way tickets of various kinds. Neither do they include what may properly be considered as excursion business from our suburban stations.

The Chicago & Northwestern, which operates three distinct lines to Chicago, did a prodigious business, as appears by the following from General Passenger and Ticket Agent W. A. Thrall:

I have pleasure in giving below a carefully prepared estimate of the entire number of passengers, including regular travel and excursionists, carried by the Chicago & Northwestern Railway into Chicago during the time of the dedicatory ceremonies of the World's Fair buildings: October 19, 32,800; October 20, 42,925; October 21, 38,020; October 22, 31,015; making a grand total for the four days of 144,760 passengers.

The Chicago, Burlington & Quincy, besides carrying troops, brought in, it is estimated, 15,000 persons in addition to its regular travel. General Passenger Agent Eustis thinks the road brought in altogether about 25,000 people during the three days.

The traffic of the Chicago, Rock Island & Pacific from October 19 to 21, General Passenger Agent Sebastian says, was 26,000 passengers.

As to the Chicago & Alton's business General Passenger Agent James Charlton says:

It is impossible to give you anything like a correct estimate of the number of passengers which we carried into Chicago to attend the dedicatory exercises, but our agents sold 3000 excursion tickets to Chicago and return on this occasion. This does not cover the tickets sold by connecting lines over our road to Chicago, nor does it cover the number of passengers purchasing single-trip tickets to Chicago, or coming into Chicago on commutation or

mileage tickets. I should estimate such business in addition to our own sales at about 2500 passengers, making a grand total of 5500 passengers carried into Chicago to take part in the festivities attending the dedicatory exercises.

The Atchison, Topeka & Santa Fé has not received all its returns, but one estimate credits it with 3500 excursionists.

General Passenger Agent Chandler of the Wabash telegraphs: "Number of passengers carried to Chicago October 19, 20 and 21 on round-trip tickets was 6000."

For the Chicago Great Western Railway Traffic Manager Busenbark says: "On account of the fact being extensively advertised that no person would be allowed within the World's Fair grounds excepting those provided with invitations, the attendance from distances outside of the 100 mile radius of Chicago, so far as our observation goes, amounted to comparatively nothing. Within this radius I presume this company brought into Chicago approximately 2000 people."

The Chicago & Erie brought in during four days 10,113 excursionists; the Louisville, New Albany & Chicago sold 3152 excursion tickets, and the Baltimore & Ohio carried nearly 9000 people in three days.

The Chicago & Northern Pacific, as reported by General Agent H. S. Hawley, carried on its suburban lines in three days about 23,600, as follows: October 19, 6500; October 20, 8500; October 21, 8600; besides carrying direct to the World's Fair grounds, from suburban and city stations, 1948 passengers on Friday, the 21st.

The elevated and cable railways did an astonishing business. Although the elevated road at present stops nearly 2 miles from the fair grounds, it carried 114,400 passengers on the 21st and over 257,000 in the three days. The Chicago City Railway, which has a cable line to the fair grounds and several lines connecting with this, carried about 600,000 people on the 21st. The West Division and North Division street railways, with various cable and horse lines, carried in three days 1,640,000 passengers.

Desire the Fair Open Nights.

Electrical interests of the country are beginning to complain of the rule recently adopted by the Board of Directors and approved by the National Commission closing the gates of the World's Fair at 7 p.m. In the opinion of the electrical people and many others the exposition should be kept open nights. The rule on this subject as adopted is as follows:

The gates shall be open to exhibitors and all employees at 6 a.m. and to the public at 8 o'clock a.m., and closed at 7 o'clock p.m., except in such cases as the management shall direct for special entertainments, and in such instances the gates shall close at an hour not later than 11 o'clock p.m.

This action closing the gates at 7 o'clock, with exceptions, was adopted by the National Commission at its meeting last week. No sooner was the announcement made through the newspapers than protests began coming in. The electrical people objected because they had understood that the gates would be open nightly until 10 o'clock or 11 o'clock. On this presumption they made extensive plans for night exhibits and contributed much more machinery than they otherwise would had it been understood the gates would be open at night at irregular intervals.

The *Western Electrician* says on this subject:

If this new regulation be allowed to stand it will interfere very seriously with the electrical features of the exposition—just the extent, indeed, which separates a brilliant success from a commonplace performance. The electrical men who are now so enthusiastically supporting the fair and contributing their

skill, time and money will lose heart and have little more than a perfunctory connection with an enterprise in which such a conspicuous disregard of their claims is shown. They have been led to believe that the fair was to be open evenings, and it is unfair and unjust to deprive them, at this late day, of the benefit the exposition would be to them as an object lesson to all the nations of the earth of the latest advances in electric lighting.

Why have the Exposition Company entered into contracts for electric lighting appliances involving the expenditure of between \$1,000,000 and \$1,500,000 if the grounds are not to be open to the public in the evening? Why have expensive electric fountains been contracted for if they are only to spout on a few "gala nights"? Why were the companies who figured on the electric boat and electric railway concessions not told that they need expect no receipts after 7 p.m., except in a few instances? These are a few of the questions that must be met before those interested in electrical industries can be made to believe that they have been fairly dealt with.

The prospects have been that the Electricity Building would be fairly aglow with light, exhibitors vying with one another in producing illumination; but with the gates shut at 7 p.m., there will be no incentive for this display, and one of the most attractive features of the fair will be lost.

It is altogether probable that the exposition management will modify the general rule closing the gates at 7 p.m. Some of the directors have said they did not favor such a course, because it would deprive clerks and laboring people engaged during the day from visiting the park. If the show were opened at night it is argued that these people could attend without inconvenience.

Ready to Install Exhibits.

Director-General George R. Davis on the 1st inst. assumed direction of the World's Fair, so far as the rights of exhibitors are concerned. These rights include everything pertaining to the installation of exhibits. Colonel Davis issued an order to his chiefs of departments telling them to take charge of their several buildings, and at the same time he appointed Dion Geraldine with the specific title of Aid to the Director-General, to install the exhibits. It was a big and important day's work for the Director-General, and may lead to lively times at Jackson Park, although exposition officials hope that satisfactory results will follow.

In the appointment of Mr. Geraldine Colonel Davis has named a strong man to assist him. Mr. Geraldine until a few weeks ago was superintendent of construction under D. H. Burnham, director of works. After seeing most of the buildings practically finished Mr. Geraldine, much to the regret of Mr. Burnham, resigned. Mr. Geraldine while in charge of the construction of the big buildings was regarded as an autocrat. His word was law. The contractors and the 6000 men employed by them regarded him with a peculiar feeling of awe. His personality was such that it was not deemed advisable to dispute his authority. His decisions on questions at issue were given almost instantaneously, and as a result Mr. Geraldine was held in high esteem for the expedition with which he rushed forward the work of construction.

Director-General Davis on the same day, through the Department of Foreign Affairs, stirred up foreign nations in regard to sending exhibits. Each one that has signified its intention of exhibiting at the World's Fair was sent a cablegram, which said in brief that assurances must be forthcoming at once as to whether the space granted would be utilized by the government receiving such allotment.

This notice was deemed necessary, because according to the general rules promulgated the exposition management was ready November 1 to receive exhibits. Contrary to expectation, however, but few have been received, and the Director-General, in the cablegrams sent, informed the governments receiving them that if satis-

factory assurances were not immediately returned allotments of space previously made to these same countries would be revoked and other applicants be given such reserved space.

While the Exposition Company are solicitous because exhibits have scarcely begun to arrive, the record of the Philadelphia Centennial should afford assurance that exhibitors are dilatory in sending on their goods. The Centennial opened its gates May 1, 1876. The great bulk of exhibits were received in the months of March and April. A few scattering consignments began arriving in December, but the lively times were experienced in the two months indicated.

Machinery Hall Lagging.

Much important work is being delayed at Jackson Park through the dilatoriness of the contractor for the iron work for the Machinery Building. This contractor agreed to have his work done not later than July 15. It isn't done yet. In consequence a great deal of annoyance and serious delay in the installation of the power plant have been occasioned. Although the contractor has been engaged for months in the construction of the building, he hasn't yet roofed over the south side of the building where the heat, power and light for the fair are to be furnished. While the work is partially done, it is so incomplete that engines and boilers have been run in the open air, and, as has been the case within the last few days, with the rain falling upon the machinery and the operators.

The boiler and engine plant at the fair will be the biggest ever installed. There will be 1100 feet filled with engines. These will furnish over 20,000 horse-power. The immense plant cannot be placed in position until the contractor for Machinery Hall shall have constructed the roof over this part of the building.

The boilers are furnished without cost to the Exposition Company. It devolves on the latter to install them and build the smokestacks. Inasmuch as the boilers are contributed free, the owners refuse to ship them until assured that they will be properly housed. The same is true in a measure of the engines, and especially of the dynamos which are to generate the currents for the electric lighting of the grounds and buildings. All this immense work is held back because the finishing of the building is nearly four months overdue.

Another Large Building Going Up.

The location for and the general outline of the Liberal Arts Building have been virtually decided upon. Director of Works Burnham has his most competent assistants at work on the plans, and when they are completed it is said they will commend themselves to all practical persons.

It is now proposed to erect the building in which is to be made the educational exhibit south and east of the Liberal Arts Building. It will stand east of the Lake Shore drive and directly between the German and French headquarters. The intramural railroad line will pass it to the west. The building will face south toward the lagoon.

The ground plan of the building will be similar to that of the Grand Opera House at the head of the Avenue de L'Opéra in Paris, being in the form of a trapezoid. The style of architecture will be peculiar and can hardly be given a name. The facing of the building, however, will be Doric, and seen from across the lagoon will be quite effective.

The length of the structure will be 450 feet, and the south line will also be 450 feet long. The building will so taper toward the north that the north line will measure only 250 feet, thus giving a

ground floor of about 160,000 square feet. It is also proposed to provide a gallery that will increase the floor area to at least 200,000 square feet.

The building will probably be divided lengthwise by a partition of some sort, and from this will be run side walls which will cut the structure into galleries. By this plan a large amount of wall space will be created.

As only \$150,000 has been appropriated it will be impossible to erect an elaborate structure.

The German Village.

The German Village in Midway Plaisance, under the direction of Mr. Belschner of Frankfort, is rapidly assuming shape. The frame work of one of the houses—the Westphalian—and also a part of the castle with the chapel are ready for the roofers and plasterers. These buildings are constructed of heavy timbers, well dovetailed together and anchored to heavy piling. A force of painters and decorators will arrive in December with Architect Hoffacker of Berlin, who will superintend the finishing of the structures. The workmen are now engaged in completing the work of making sewers, canals, leveling and parking the grounds. It is intended to save as many as possible of the fine oak trees on the ground. The village proper in the shadow of the moated castle will consist of a group of farm houses typical of different sections of Germany. There will be the peasant home of the Black Forest, the home in Westphalia, of the Bavarian Alps, &c. But the dominant feature of the German village will be the great ethnographic collection which is to be massed in the spacious halls and galleries of the castle and in the Hessian town hall. The student of history will here find a feast such as can only be spread in the State museums of the European capitals. No labor and expense have been spared to make this feature of the village attractive and instructive. The nucleus of this museum will be the rich private collection of a wealthy man in Saxony, consisting of arms and knightly equipments of historic value, beginning with the age of stone weapons, passing through the period of bronze and iron implements of war, and closing with the pretentious Renaissance. The collection of arms and coats of mail of the Middle Ages will be especially rich, comprising a large number of fully armored knights and a series of swords, spears, battle axes, helmets, &c.

World's Fair Laborers to Be Admitted.

The Acting Secretary of the Treasury has advised the Department of State, in response to a communication covering an inquiry from the United States Consul-General at Berlin, that certificates of Imperial Commissioner Wermuth as to the identity of German laborers coming to this country as employees of exhibitors at the World's Columbian Exposition will be sufficient to secure such employees admission to our ports. Similar evidence of identity as to such employees from other countries will be regarded as sufficient.

The scarcity of rain is remarkable. The last two months are almost unparalleled in this neighborhood. From September 1 to October 24 we had less than $1\frac{1}{2}$ inches of rain (that is, 0.87 in September and 0.59 in October), against over 4 $\frac{1}{2}$ inches in the same time last year and over 12 inches in the corresponding period of 1890.

The mercantile exchanges at all our seaports express anxiety respecting the fate of the Anti Option bill in the next Congress, which meets in December. Grain and cotton dealers are chiefly interested.

Centrifugal Force as Applied to Revolving Machinery.—II.

BY G. D. BISCOX.

In any body revolving upon a central axis, as a globe, disk or ring, there is a circle within the periphery in which all the force of revolution of the whole body may be said to make an average center or circle that represents the concentrated force of the revolving mass. This is the circle of gyration. In bodies revolving around an axis external to their mass the center of force is designated as the center of gyration of the body. This center of gyration, therefore, represents the moment of inertia for all the particles of the revolving mass.

The distance from the axis to the center or circle of gyration is the radius of gyration, and is one of the essential elements in the computation of centrifugal force. For a solid sphere of uniform density revolving around its diameter as an axis, the radius of gyration =

$$\sqrt{\frac{\text{radius of the sphere}^2}{2.5}} = 0.63246 \text{ of}$$

the radius of the sphere; and for a uniform disk = the radius of the periphery $\times \sqrt{\frac{1}{2}} = \frac{1}{1.4142} = 0.7071$ of the radius of the periphery.

For a ring or disk with an open center the radius of gyration =

$$\sqrt{\frac{\text{inner radius}^2 + \text{outer radius}^2}{2}}$$

The last expression is used in the formula for the power of

Centrifugal Pumps.

The centrifugal force of a fluid when it becomes a revolving body is well illustrated in the action and power of this class of pumps; which by the mere forced revolution of a ring of water causes its translation and successive renewals with a lifting power to move large volumes of water, silt and sand with a clear run that defies the action of reciprocating pumps with valves and rubbing surfaces that would be soon destroyed by the material that will have a clean run through a centrifugal pump.

The elements of computation involve the weight of the material to be lifted; the velocity of the circle of gyration, its radial distance and gravity.

The weight of a disk of water in a centrifugal pump with wings 12 inches in diameter and with 4 inches of the central part neutral from the absence of wings and the entrance of the suction pipe, with an average thickness of 1 inch, is equal to $12^2 \times 0.7854 = 113$ cubic inches for the disk, less $4^2 \times 0.7854 = 12.56$ for the neutral center = 100.44 cubic inches $\times 0.03615$ pound. The weight of a cubic inch of water = 3.63 pounds, the weight of the disk of water with a forced revolution.

Then by the formula for centrifugal force $\frac{W \times V^2}{g \times r}$ in which W = weight in pounds, V^2 = square of the velocity of the circle of gyration in feet per second, g = the force of gravity, 32,166, and r , the radius of gyration in feet, we have for example, with the above size and weight at 1000 revolutions per minute, the

radius of gyration = $\sqrt{\frac{V^2 + G^2}{2}} = \sqrt{\frac{40}{2}} = 2$ = 4.472 inches. For the velocity of the circle of gyration

$$4.472 \times 2 \times 3.1416 \times 1000 = 2841.015$$

$$12 = 60 \text{ seconds}$$

$$= 39 \text{ feet per second. The radius of gyration}$$

must be taken in feet, which = $\frac{4.472}{12} = 0.3726$.

The equation becomes $\frac{3.63 \text{ lbs.} \times 39^2}{32.166 \times 0.3726} = \frac{5521.23}{11.985} = 460.67$ pounds, the total centrifugal force.

As this represents the force of the whole area of the circumference of the circle of gyration 1 inch wide, its division by the number of inches in the circumference will give the force or pressure per square inch; therefore $\frac{460.67}{8.942 \times 3.1416} = 16.4$ pounds per square inch pressure, and $16.4 \times 2.3 = 37.72$ feet, the static height of water due to the centrifugal force of the pump.

The loss by clearance between the arms and shell, together with the friction of the water on arms, shell, pipe and bends, as also for the requirement for velocity of flow, lessens the height for effective flow to the amount of about 20 per cent., according to the perfection of design and construction, leaving from the above static height only about 30 feet as the limit of efficiency of the pump at the speed of 1000 revolutions per minute.

The quantity of water that would be delivered at the periphery of the wings of the pump if placed at the level of the water of influx and without obstruction will be equal to the static pressure due to its centrifugal force, less the clearance and friction of the pump arms and shell.

Estimating that this will bring the static head to 35 feet, and using the usual formula for discharge: $c b d \sqrt{2g h} =$ the volume in cubic feet per second, c = coefficient, 0.62; area of circle of gyration = $\frac{28.092}{144} = 0.195$ square foot, and

the square root of twice gravity $\times \sqrt{35} = 47.75$. Then $0.62 \times 0.195 \times 47.75 = 5.772$ cubic feet per second, less 20 per cent., or 2078 gallons per minute. As the discharge is nearly in the inverse ratio of the height, and with 35 feet as the limit and 30 feet as the assumed height of discharge, then the difference between 30 and 35 becomes the static head and the basis for computing the discharge of the pump at 30 feet height. This gives by the formula above stated 981 gallons per minute, from which 20 per cent. should be deducted for clearance and arm friction and an additional deduction of 25 per cent. for the friction of the shell, bends, pipe and foot valve, bringing the actual discharge to about 590 gallons per minute.

Centrifugal Force of Blowers.

The power of a blower is due to the weight of air and the velocity of rotation, and like other revolving bodies is a matter of computation from the known elements.

Air at mean temperature of 60° has a volume of 13 cubic feet to 1 pound, and $\frac{1}{13} = 0.07696$ pound per cubic foot, and on this value is based the computation for centrifugal force of air and the power of blowers. Following a similar formula as for centrifugal pumps, we assume a case which will fully illustrate the formula and its principles.

A conoidal incased fan of the form of which Fig. 1 is a section in one of the types of high pressure single blowers, having an outside diameter of 20 inches, inside diameter of disk 10 inches, 1 inch opening at the circumference and 3-inch opening at the inner edge of disk.

Area of periphery = 1 inch \times 20 inches $\times 3.1416 = 62.832$ inches. Area of equivalent, in space, 2 inches \times 10 inches $\times 3.1416 = 62.832$ inches. Volume of disk, 62.832 inches \times 5 inches = 314.16 cubic inches; although inner space is made wider to lessen friction.

1 pound = 0.07696 pound per cubic foot
 $13 c^3$
 of air. $0.07696 \times 314.16 = 0.01399$
 1728
 pound, the weight of the air in the disk available for centrifugal force. The circle

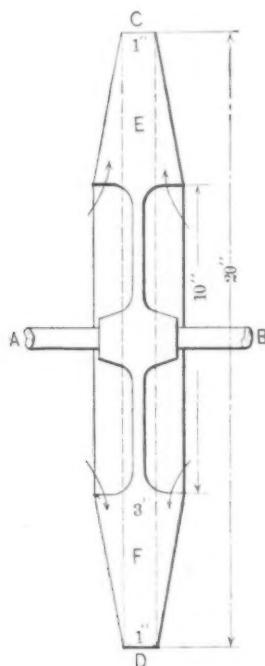


Fig. 1.

of gyration is found in the same way as before stated for pumps, viz.:

$$\sqrt{\frac{10^2 + 20^2}{2}} = 15.8113 \text{ inches, and}$$

$$\frac{15.8113}{2} \text{ inches} = \frac{7.9056}{12} \text{ inches} = 0.6588$$

foot, the radius of gyration in feet. Then, the velocity of the circle of gyration in feet per second, assuming the blower to make 2000 revolutions per minute, will be $15.8113 \text{ inches} \times 31416 \times 2000 = 138$
 12×60
 feet per second.

Then, using the formula for centrifugal force as before stated, $0.01399 \times 138^2 = 32.166 \times 0.6588 = 12.57$ pounds, the total centrifugal force. Then, as the opening in this disk is 1 inch wide, and 20 inches \times 31416 = 62,832 inches in circumference, the area = 62,832 inches, and $\frac{12.57}{62.832} = 0.2$

pound per square inch pressure of the blower, or 3.2 ounces = 0.46 foot water pressure. The volume of air flowing through the blower under this pressure is very much less than through a free opening, the friction of arms, wings, case and pipe obstructing the theoretical flow, which may be computed from the formula $c \sqrt{2gh}$, in which c is a coefficient of efflux equal to 0.7, $2g$ = twice gravity, and h = the height in feet of a column of air sustained by the pressure of the fan per square foot.

The pressure being 0.2 pound per square inch, then $0.2 \times 144 = 28.8$ pounds per square foot, and $\frac{28.8}{0.07696} = 374.22$ feet air

height, 0.07696 being the weight of 1 cubic foot of air, as before stated. Then the equation becomes $0.7 \sqrt{64.33 \times 374.22} = 109.438$ feet per second, the velocity of air issuing under 0.2 pound pressure per square inch without friction. Thus having the area and velocity in feet per second, we have $109.438 \times 60 = 6566$

feet per minute, and $\frac{6566 \times 62.8 \text{ inches}}{144 \text{ inches}} = 2863$ cubic feet per minute, from which a large allowance must be made for friction and obstruction by the arms, wings and case. Where such a blower is used for forge fires, the area of the nozzles under the pressure, less the friction, governs the quantity of air delivered to the forges.

Vibrating Power of Unbalanced Elements of Revolution.

It is a conceded maxim that a body, whether in the form of a wheel or continuous rim, or an arm carrying weights at its ends—whether symmetrical in distance from the center or not—if all its parts are in exact proportion in weight to their distance from the center of revolution and from the plane of revolution, they are balanced at rest, and at all speeds.

A mechanically absolute center and an absolute plane of rotation, to which every particle of a revolving body is adjusted, are as necessary to smoothness of motion in mechanics as with planetary bodies. The plane of rotation and the axis must be at right angles and with perfect balance the highest speed may be attained.

Any deviation from this axiom involves a vibratory or unbalanced motion which when restrained by journal boxes tends to set up counter motions in the surrounding material.

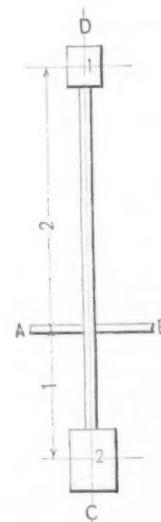


Fig. 2.

Illustrating this point, Fig. 2 represents the conditions of stability of revolution with balanced elements, in which the weight 2 at the distance 1 is found to exactly balance the weight 1 at the distance 2, the dotted line C D being the plane of revolution, exactly at right angles to the axis A B and in which the center of gravity of each weight coincides with the plane of revolution. Such an arm and weights will be perfectly balanced on its axis at rest and under all speeds of revolution upon its axis.

Any variation from this relation, as shown in Fig. 3, produces two planes of revolution in which each revolving body has no counter part in its plane of revolution and, therefore, produces a strain to draw the axis A B out of its normal position with all the centrifugal force due to the revolving bodies, at their relative axial distances, 1 and 2, multiplied by the sign of the angle of deviation from the axial plane C D. This is well illustrated by the action of suspended centrifugal dryers, in which the wobbling action of the shaft is well shown from the inability to exactly balance the load in the plane of revolution. With centrifugal dryers having their bearings in fixed boxes the vibration

from unbalanced revolution becomes excessive and will set a whole building in a tremor.

To illustrate the power of an unbalanced wheel or any revolving body, referring again to Fig. 2, assuming the weight at D

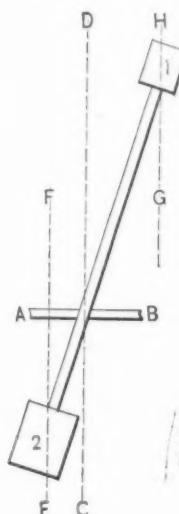


Fig. 3.

overbalanced by $\frac{1}{2}$ pound and the distance of its center of gravity 2 feet from the axis, and revolving at 1000 revolutions per minute, the total unbalanced centrifugal force amounts to 679 pounds, moving around the center 16 times per second.

The magnifying of the power of vibration of small unbalanced bodies under great velocity by revolution is a source of apprehension and danger by its effect in setting up vibration in floors and buildings. When the vibrations thus set up become in unison or synchronal, the effect becomes so intensified, even by the smallest unbalanced forces, as to not only annoy persons, but to endanger whole buildings. The synchronal unison of vibration does not require that the revolving unbalanced body shall revolve in the same time as the vibration of a floor or a building. It belongs to the system of musical harmonies, and, so long as the vibrations are even divisions, the harmony is more or less perfect and the synchronism will be sustained, while, on the other hand, if the relative ratios of vibration are fractional numbers, the vibrations will cease or become so broken as to become harmless. Instances are known in proof of the unison between rotating unbalanced and reciprocating machines with the building in which they were located, that it became necessary to maintain a certain speed in order to keep the building and floors from violent vibration. There are some remarkable instances of this in the motion of printing presses, in which a slight variation of speed will greatly increase or decrease the vibration of buildings. An interesting trial of an emery wheel but slightly unbalanced by wear has shown its synchronal power of setting up vibrations on a floor at a number of different speeds, when at some intermediate speed the vibrations would nearly cease. The balancing of cutter heads for planing machines becomes an important point in their manufacture, requiring uniformity in the density of the main casting, perfect symmetry in all its parts, as well as uniformity in the weight and position of the knives, for it is this perfection of make and balance that makes a smooth surface when at work. No matter how well it is balanced on the straight edges, if not balanced on the plane of rotation it will make the journals vibrate and the planed surface wavy.

The balancing of millstones is one of the fine arts in the millstone process of making flour. The requirement in this

case is that the plane of revolution shall be parallel with the face of the stone, and also be coincident with the spindle bearing in the yoke. The variable specific gravity of the materials from which the stone is built up makes the balancing a somewhat difficult operation. To be balanced at rest and at various speeds is the basis of perfection in a millstone as well as all revolving machinery.

The cutting away at the top of the stone opposite to the part of the face that runs low and loading with plugs of lead on the same side, below the plane of revolution, is the usual method of balancing millstones.

The question has often been asked by experimenters and mill operators, how fast a disk of iron or steel, a circular saw for instance, can run with safety, and at what speed disks of metal will burst? By using the formula as before stated in article on "Centrifugal Force" in this journal April 7, and substituting the square of the tensile strength of any metal and its weight per cubic inch, for the terms V^2 and W , the number of revolutions at which it may break can be obtained. Then the equation will become

$$12 \times W \times \text{tensile strength}^2 = \text{the square of the velocity of the circle of gyration in feet per second.}$$

Its application to the case of a steel disk 3 feet in diameter and having a breaking tensile strength of 90,000 pounds per square inch may be readily computed.

The weight of good saw plate is approximately 0.283 pound per cubic inch. Then $12 \times 0.283 \times 90,000^2 = 855,176$, the square of the velocity, and $\sqrt{855,176} = 924.8$ feet, the velocity of the circle of gyration per second.

As the diameter 3 feet $\times 0.7071 = 2.1213 \times 3.1416 = 6.664$ feet = the circumference of the circle of gyration; then $924.8 = 138.7$ revolutions per second, or 8322 revolutions per minute, to burst the disk.

As the relation of bursting speed is as the squares of the diameters with steel of a uniform tensile strength,—the bursting speed of an 18 inch steel disk would be four times greater than the 3-foot disk, or $4 \times 8322 = 33,288$ revolutions per minute, while a 1-foot disk would require $9 \times 8322 = 74,898$ revolutions per minute to burst it.

Rapid Ore Loading.

Some time since *The Iron Age* printed an item giving the time in which the steamer "Manhattan" was loaded at Escanaba with 2010 tons of ore as 45 minutes. The statement at that time was questioned. H. A. Barr, agent of the Chicago & Northwestern Railroad Company at Escanaba, confirms our former report, and adds the following list of fast loading accomplished at the Escanaba ore docks:

Kaliyuga, 2120 tons in one hour.
Manhattan, 2080 tons in one hour and a half.
Kaliyuga, 1927 tons in two hours.
Cambria, 2379 tons in two hours.
Manchester, 2502 tons in two hours.
Briton, 2600 tons in three hours.
Maryland, 3027 tons in three hours.
Maritina, 4218 tons in three hours and a half.

Mr. Barr adds: "I could give you a long list of such instances of fast loading, but think this covers your point. Our fast loading simply depends upon the ability of a boat to take the ore; for our pockets hold, in one dock, 200 tons, and if a boat has eight or nine hatches so we can lower that many shutters at once, and if the ore is dry, it is only a matter of a very few minutes to clean out the eight or nine pockets, as they can all be worked at the same time. The time it takes a boat to shift is what makes it take so long to load.

We have very often emptied pockets of 125 to 150 tons in five minutes, and can do this whenever the ore is dry and everything favorable."

THE WEEK.

Report says that the Consolidated Gas Company of this city have arranged to manufacture their product in Long Island City and pipe it across the river.

The American Cotton Oil Company report \$1,853,973 profits for the year, a gain of \$530,000 over the previous year. But the gain is not sufficient to make a dividend on all the stock issued. Even trusts sometimes fail to realize their greatest expectations.

The improvements effected in sailing ships in the last ten years are well illustrated in the "James Kerr" of Liverpool, which has just sailed for Calcutta. This vessel is built of steel, and is about 3600 tons dead weight. She is rigged as a four masted bark. All the spars are of steel, and there are double topgallant and topsail yards. The yards on all three masts are of the same relative size. Another feature is the employment of small capstans, whereby the heavy topsail yards, weighing some 4 tons apiece, can be hoisted by five men in about 10 or 11 minutes.

Manitoba promises to send 5,000,000 bushels of wheat to Fort William before navigation closes.

Henry Neill, the accepted authority on cotton at New Orleans, furnishes to the press his estimate of the cotton crop of 1892, which he places at 7,100,000 bales maximum.

Wages in the Fall River cotton mills have been restored to the old standard of 1884.

All the English Government and trade reports indicate a depression in general business, not only in the foreign trade as reflected by imports and exports, but in the manufacturing branches at home. The shipbuilding, cotton and iron industries are all dull.

The coastwise traffic has increased so enormously that the two regular lines of steamers between New York and New Orleans will together make five departures each way every week, and one steamer a day will soon be necessary.

The sugar trust has changed the form of its packages from barrels to bags, of which 5,000,000 have been ordered from a Philadelphia manufacturer. The weight of the bag is only $1\frac{1}{2}$ pounds; that of the barrel 23 pounds. Thus, the difference in freight alone for carrying refined sugar to its destination would pay several times over for the bag. The barrel's successor is a plain burlap bag, with a light muslin bag inside.

The consumption of kerosene oil in China has risen from 8,256,000 gallons in 1882 to 49,348,000 gallons in 1891, according to the imperial statistics. Russia supplied last year 10,000,000 gallons, America furnishing nearly all the remainder. Oil from Peru appeared last year as a rival.

Great Falls, Mont., aims to be one of the great cities and railroad centers of the far West. It has a population of 10,000. Which shall be the capital, Great Falls or Helena, remains to be decided.

General Crespo, the president *de facto* of Venezuela, has issued a proclamation declaring the principal adherents of the late government of Venezuela traitors and confiscating their property. The peace of the country is said to be restored. Nevertheless it was deemed necessary to

dispatch 10,000 men to a turbulent section of the country to preserve peace.

The city of Allegheny is arranging with the Pennsylvania Railroad authorities for a system of elevated railroad tracks, at an estimated cost of at least \$2,000,000.

The four street car-building companies in St. Louis have consolidated.

The North German Lloyd Steamship Company have ordered another fine twin-screw steamer to be built in England for the line to New York.

The volume of provision exports is well maintained. The aggregate number of hogs handled for the eight months in the West is about 7,750,000, against 6,696,000 last year and 9,540,000 in 1890. The increase this season over last year is about 1,050,000 hogs, while the total is about 1,790,000 less than in 1890.

CORRESPONDENCE.

Virginia Gossan Ore.

To the Editor: I beg to call your attention to an article in *The Iron Age* of October 27, page 773, in regard to Virginia gossan ore, which is incorrect. The only party purchasing Ducktown gossan ore is the Pulaski Iron Company, who are the principal owners of the Virginia gossan mines, and they are only purchasing a little as an experiment. We would like very much to have you correct the statement, as the gossan ore of Virginia is all that is claimed for it, and yields about 42 per cent. The Pulaski Iron Company, who I think are admitted by the trade generally to have the best reputation for iron made in Virginia, use one-half of this celebrated Virginia gossan ore.

The Graham Furnace has been a large consumer of gossan ore from Virginia. That furnace is now out of blast. The Dora Furnace of the Pulaski Development Company, I understand, use gossan ore, which they purchase from the New York and Virginia M. & M. Company, of which R. T. Wilson of New York is president. The Radford-Crane Furnace propose to use gossan ore from us when they go into blast. The Ivanhoe Furnace has used the ore and are now in negotiation with us for more ore.

As for the quantity of Ducktown gossan ore that is coming into Virginia, I would say that the Pulaski Iron Company, of which I am treasurer, is the only company to my knowledge using it, and that it was only used to the extent of less than 200 tons in the month of September. It is a richer ore than our gossan ore, but no purer, excepting in metallic iron, and we pay a correspondingly higher price for it. The Roanoke Furnace used the gossan ore "largely." But having opened up a new mine of their own, which will give them cheaper ore, having less freight to pay, they have discontinued its use for the present. The Crozer furnaces have told us that as soon as they had room in their stockhouse to receive gossan ore and use it regularly, they propose to put a portion of it in their mixture.

Yours truly,
VIRGINIA MINING COMPANY,
ABRAHAM S. PATTERSON, Treasurer.

The annual meeting of the American Society of Mechanical Engineers will be held in New York on the 29th, 30th and 31st instant. The local committee is organized and proposes to arrange for a reception and *conversazione* at Sherry's.

The shipments of ore by lake by the Chicago & Northwestern Railway Company this season to November 1, amount to 3,696,591 tons.

Some Manufacturing Cities.

The newspapers of some of the leading cities have contained a good many attacks upon the figures published by the

A glance at this table reveals many curious features. Chicago, which pays only one-half the wages in its manufacturing establishments which New York returns, nevertheless uses materials valued

above general figures have been compiled give specifically returns bearing on foundry and machine shop products. These we have grouped in the second table, without, however, attempting any classification by rank.

Philadelphia throughout stands at the head of the list, followed by Chicago so far as number of employees and value of product are concerned. Cleveland and Brooklyn take the next rank, and Cincinnati and St. Louis follow closely after.

Statistics of Manufacturing Cities.

Cities.	Number of establishments reporting.	Capital.	Hands employed.	Wages paid.	Cost of materials used.	Miscellaneous expenses.	Value of product.
New York	25,399	\$420,238,602	351,757	\$228,537,295	\$357,086,305	\$60,223,425	\$762,833,923
Chicago	9,959	292,477,038	263,108	119,146,357	386,814,848	41,550,761	632,184,149
Philadelphia	18,148	362,895,272	253,073	132,436,268	302,623,539	39,505,571	564,323,762
Brooklyn	10,561	125,849,052	103,683	61,9,5,702	137,325,749	14,824,464	248,750,184
St. Louis	5,453	133,292,691	90,966	52,170,536	120,887,355	17,381,274	225,500,657
Boston	7,915	116,644,490	90,198	54,636,695	104,631,879	21,399,163	208,104,683
Cincinnati	7,664	89,886,796	89,528	43,934,384	83,090,968	18,338,352	178,650,185
San Francisco	3,965	65,612,049	46,850	29,800,057	77,188,061	7,901,164	131,263,713
Cleveland	2,300	59,826,496	48,771	27,586,408	58,763,062	4,690,406	104,199,169
Buffalo	3,559	67,867,154	49,908	24,617,408	51,162,770	7,179,615	96,448,654
Milwaukee	2,867	64,280,595	41,127	19,298,998	51,717,457	7,999,973	91,354,983
Newark	2,413	58,847,452	43,302	24,508,961	38,074,115	5,611,156	81,560,137
Minneapolis	2,649	40,763,718	26,463	14,439,005	50,116,362	3,629,490	77,146,451
Rochester	1,889	45,831,677	32,429	16,501,405	37,915,353	5,674,753	73,164,696
Providence	1,888	54,274,222	37,955	18,789,500	36,674,308	4,550,771	71,810,173
Lowell, Mass.	828	40,457,359	28,086	10,695,545	21,613,680	3,566,636	39,638,062
Worcester	978	25,339,203	21,478	11,541,703	20,994,852	3,884,728	39,190,817
Omaha	626	15,626,169	7,533	4,797,482	27,779,394	3,511,456	38,961,523
Lynn	1,343	12,990,755	19,792	11,328,797	20,210,008	1,875,902	38,310,585
Kansas City	1,473	12,708,990	14,692	9,30,032	16,276,004	1,824,447	31,571,559
St. Paul	1,421	21,438,588	17,485	9,731,588	15,064,160	1,606,652	31,068,200
Fall River, Mass.	312	36,513,260	22,822	8,314,811	16,926,445	2,020,806	31,029,451
Denver	760	16,122,168	10,556	8,298,235	14,091,544	1,431,031	28,794,792
Albany	1,294	16,441,365	14,670	7,817,564	11,362,017	1,767,707	24,430,396
Dayton	920	12,805,231	11,779	5,772,391	11,478,411	1,426,304	22,049,906
Bridgeport	555	19,064,180	12,763	7,492,062	10,173,212	1,448,898	21,829,776
Trenton	777	14,919,417	18,284	6,487,300	8,740,888	938,413	19,597,601
Allegheny, Pa.	616	14,441,916	9,216	5,020,188	10,095,713	1,477,287	19,297,003
Grand Rapids	862	14,978,015	12,814	6,259,758	9,171,347	1,296,532	19,258,347
Wilmington	374	15,652,246	10,236	5,547,408	10,386,066	826,589	19,068,116
Nashville	389	9,166,626	7,434	3,318,961	7,727,010	643,926	13,673,730
Evansville	375	8,432,384	6,766	2,876,298	6,386,368	707,722	11,788,672
Wheeling	377	7,223,027	5,439	2,441,223	6,448,253	1,184,569	11,279,541
Atlanta	333	7,89,370	7,680	3,296,664	5,289,455	864,061	11,239,591
Elmira	521	5,792,959	4,566	2,212,144	4,025,057	485,452	7,719,243
Des Moines	297	2,792,979	3,149	1,666,969	2,425,796	339,460	5,242,902

Census Office which relate to the manufacturing industries of the cities in question. Some of these strictures are seemingly justified. There may be some curi-

at a larger sum. Adding wages, cost of materials and miscellaneous expenses, and deducting this total from the value of product, shows a balance of \$116,986,898;

Statistics of Foundry and Machine Shop Products.

Cities.	Number of establishments.	Capital employed. Aggregate.	Hired property. Total.	Plant. Total.	Live Assets. Total.	Average number of hands employed during the year.	Wages paid. Aggregate.	Materials used. Aggregate cost.	Miscellaneous exp'snes Aggregate.	Manufacture. Aggregate.
New York	342	16,943,185	4,706,588	5,561,856	6,674,741	9,159	\$7,902,617	6,600,990	1,057,362	18,049,794
Chicago	212	24,725,275	2,492,000	10,640,344	11,592,931	12,935	7,714,113	13,657,702	1,866,050	29,928,816
Philadelphia	347	34,469,632	3,038,600	17,007,778	14,423,256	19,040	11,442,921	12,051,921	1,912,788	31,195,028
Cleveland	104	7,997,233	582,655	3,317,615	4,066,963	8,155	4,533,223	6,217,669	873,247	13,432,334
Buffalo	62	8,469,015	831,025	2,806,472	4,771,51	4,814	2,446,848	3,175,449	525,979	7,048,806
Milwaukee	44	6,589,525	370,625	2,580,252	3,696,648	3,263	1,736,352	2,552,867	656,712	5,568,445
Newark	73	3,601,983	385,910	1,578,614	1,637,459	2,225	1,378,540	1,172,264	206,632	3,173,848
Rochester	53	3,078,647	358,820	1,381,306	1,338,521	1,623	1,060,337	1,058,327	247,578	2,944,449
Providence	57	7,519,742	494,100	3,762,701	3,272,941	3,938	2,454,488	2,256,249	241,826	6,232,846
Worcester	78	5,116,256	614,465	1,991,455	2,510,336	3,55	2,200,179	2,314,452	282,872	5,472,417
Lynn	28	499,270	130,000	155,202	214,688	426	285,295	177,699	35,430	674,139
Kansas City	21	659,370	87,085	386,900	185,385	374	272,448	267,485	38,064	629,960
St. Paul	13	623,678	60,390	294,82	268,528	366	248,984	379,046	19,950	739,350
Denver	17	1,823,661	68,450	906,270	348,941	540	450,194	438,803	58,984	1,108,519
Dayton	24	1,565,58	71,160	82,600	811,998	1,170	745,784	656,698	92,276	1,756,278
Grand Rapids	18	944,157	58,970	401,218	435,969	553	322,106	214,275	39,445	753,490
Nashville	8	598,060	78,400	132,728	586,932	428	239,408	272,530	48,125	761,320
Evansville	13	991,351	40,480	458,020	492,901	662	359,432	286,892	34,829	939,989
Atlanta	14	1,000,178	58,425	417,024	524,729	622	306,174	269,259	73,114	790,875
Des Moines	10	190,400	12,210	127,300	50,980	132	85,061	74,182	6,631	207,575
Emmira	6	516,367	9,600	265,544	211,233	276	165,718	113,307	55,027	388,913
St. Louis	103	10,184,926	849,439	4,555,744	6,345	3,877,946	5,095,621	11,945,493	11,945,493	11,945,493
Omaha	10	500,240	41,940	284,525	100,775	321	321,306	394,167	20,706	727,600
Boston	179	9,060,211	2,307,385	2,630,874	4,121,952	4,727	3,315,242	3,122,167	672,944	8,536,272
Wheeling	5	274,709	31,290	150,900	92,519	198	119,407	81,054	20,478	248,574
Wilmington	16	2,342,618	8,200	1,327,988	1,006,430	1,159	663,070	674,176	91,433	2,060,034
Lowell, Mass.	37	2,536,025	198,115	888,389	1,449,521	2,100	1,107,618	1,050,861	239,437	2,554,111
San Francisco	93	174,263	1,433,770	2,372,921	2,467,572	2,767	2,322,284	2,701,148	339,321	3,155,921
Fall River, Mass.	16	592,313	124,100	1,82,449	285,764	578	309,758	323,975	30,933	791,978
Albany	20	1,643,016	91,512	589,735	1,058,799	1,058	644,758	640,414	184,485	2,059,102
Brooklyn	169	18,725,515	1,473,750	6,046,228	6,205,540	7,753	5,641,132	5,125,183	130,096	13,317,789
Bridgeport	19	1,802,598	125,170	911,432	765,996	1,257	717,655	746,529	248,994	1,922,805
Cincinnati	130	11,237,318	2,409,200	3,157,154	5,580,984	7,536	4,433,265	5,239,517	847,486	12,981,803
Allegheny	19	914,322	93,555	489,675	51,092	643	309,861	311,377	63,064	915,878
Trenton	16	1,545,376	29,985	810,950	704,435	1,111	576,612	835,792	73,827	1,618,874
Minneapolis	36	1,374,924	206,910	581,210	586,804	733	509,280	418,785	77,118	1,411,721

osity to compare the figures, such as they are. We have, therefore, compiled the accompanying table, giving the principal data, arranging the list in accordance with the value of product reported.

while Chicago's balance, computed in the same manner, is \$84,672,196, with a capital of a little under \$300,000,000, while New York is entered at \$420,000,000.

The same documents from which the

above general figures have been compiled give specifically returns bearing on foundry and machine shop products. These we have grouped in the second table, without, however, attempting any classification by rank.

Philadelphia throughout stands at the head of the list, followed by Chicago so far as number of employees and value of product are concerned. Cleveland and Brooklyn take the next rank, and Cincinnati and St. Louis follow closely after.

NEW PUBLICATIONS.

The Iron Age

New York, Thursday, November 10, 1892.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAR. KIRCHHOFF, - - - EDITOR.
GEO. W COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

Subsidence of Speculation.

Speculation, except in some of our staple commodities such as grain and cotton, languishes compared with some former years. This is obviously true of stocks and general securities, although the aggregate of transactions is estimated to represent something like 25 per cent. of the total clearings of our city banks. While the great financial collapse of 1873 served to restrain the speculative spirit for a time, the record shows that the resumption of specie payments in 1879 was the precursor of a fresh outbreak surpassing anything experienced before or since. On the Stock Exchange during the succeeding five years the number of shares sold annually averaged upward of 104,000,000, as compared with 51,000,000 shares during the previous quinquennial period and 83,000,000 during the five years immediately following. Ever since the disposition to "dabble" in stocks has been declining, at least so far as the outside public is concerned, the bulk of business being confined to professional traders.

This tendency is especially manifest since the beginning of 1892, from which circumstance it may reasonably be inferred that many who regarded stock speculation as offering the quick way to wealth have learned to the contrary by sad experience. This inference is strengthened by the fact that meanwhile enormous amounts of "industrials," so called, the offspring of trusts of various kinds, have been added to the list of securities offered at the exchange, and which are commonly supposed to exercise a special fascination. But the Stock Exchange alone in its operations does not afford a true index of the speculative spirit, for the fact should not escape observation that simultaneously with the decrease in the volume of transactions in securities, nearly all the leading commodities such as grain, cotton, petroleum, coffee, &c., have engaged attention.

In 1885, for example, there were sold on the New York Cotton Exchange in round numbers 19,500,000 bales, on the Produce Exchange 1,882,000,000 bushels of grain, and on the Petroleum Exchange 3,500,000,000 barrels of oil. Cotton and grain are still favorites with the speculative crowd, in competition with stocks, transactions during the last year surpassing those of any previous year with one or two exceptions; but petroleum has nearly dropped out, and the Metal Exchange, which at one time acquired some importance, has only a nominal existence.

While some of the more important exchanges have not suffered a material loss

of membership during the last few years, the value of seats has declined, and the margin of profits in like proportion. It is also to be remarked that the speculative furore noticeable in former years has wholly subsided. Nor is the gambling passion likely to be revived to the same intensity as in former years unless special opportunities should arise, such as result from vicious legislation.

The World's Fair Management.

All friends of the Columbian Exposition deplore the fact that the British Commission appear to have been slighted in connection with the recent dedicatory ceremonies in Chicago. The manufacturers and merchants of Great Britain are relied upon to make an interesting and comprehensive exhibit, and, if through any misunderstanding they were to conclude that they would be unwelcome and should stay away, the exhibition would be a heavy sufferer in the loss of a display of very great interest and value. An international exhibition with Great Britain left out might still be well worth visiting, but it would not be a true representation of the present stage of scientific, industrial and commercial progress throughout the world. There is keen rivalry between American and British manufacturers, but no American is so narrow that he would wish to see Great Britain's place vacant in the great gathering of the nations at Chicago next year. According to James Dredge of the British Commission efforts were "successfully made to prevent a representative delegation of the Royal British Commission from being present at the dedication ceremonies," and he attributes it to politics, saying that "it is perhaps to be regretted that the fever of the Presidential election is nearing its height in the United States just at the time of the dedication ceremonies of the exhibition."

From a full knowledge of the situation at Chicago, we feel that we can safely assure Mr. Dredge and the other members of the British Commission that politics certainly had nothing whatever to do with the treatment of the commission. From the inception of the undertaking not a shadow of partisanship has rested on any action by the various officials. The great political parties were as evenly represented as possible in the management, so that no opportunity would be given for a suspicion that the exhibition would be manipulated to the advantage or disadvantage of either side. In addition to this, care has been taken in the election or selection of officials to secure men of the highest reputation who would scorn any attempt by unscrupulous political managers to induce them to use their positions for partisan purposes. The fierce light of a vigilant local press, keen to discover shortcomings of any kind, has beat upon the management of the exhibition from the beginning, but thus far has failed to detect any evidence of political bias. It is, therefore, rather singular to find an intimation coming all the way from Eng-

land that politics was to blame for the slight to the British Commission.

Faultless as the exhibition management has been politically, errors have been made in other respects. A divided responsibility always will cause more or less trouble. The National Commission and the local directory have repeatedly clashed, and some important details are apt to be overlooked in a contest over a trivial matter of authority. This is an organic weakness of the management which could not have been avoided unless the United States Government had assumed the entire cost of the international exhibition, in which case there would have been no local directory of any kind whatever. It may pretty safely be assumed that from this condition of divided responsibility and interference by one body with the duties of the other, arose such blunders as that which is the subject of complaint by Mr. Dredge and his associates. We are very sure that it was not intentional, as it would have been too grave a matter to be deliberately perpetrated. The presence of British exhibitors at the World's Fair is too earnestly desired by everybody interested.

Unions in Indiana.

The natural gas region of Indiana is the paradise of trades unionism. The visitor does not need to inquire about this feature of the locality among the employers of labor. He will see evidences of it on every hand. The stores hang out signs that they are union stores. Barber shops and saloons are placarded in the same way. No tradesman receives any patronage from workingmen unless he thus proclaims his fealty to trades unionism. So far is this idea carried out that even millionaires and notion merchants, whose patrons are almost exclusively ladies, find themselves without customers unless they display a card branding their place of business as a union store. The wives of the workingmen thus support their lords and masters in the attempt to make trades unionism universal. The strength of the unions in the gas region has been greatly supported and assisted by the prosperity of the manufacturing industries and the very rapid growth of the towns and cities. Labor is constantly in demand, and manufacturers cannot afford to wage battle with their men on the question of union domination. As long as they are prosperous and the leaders of the unions do not render trades unionism obnoxious by the enforcement of arbitrary rules there will be no change in this respect. If the leaders are wise they will conduct affairs so that employers will have no good reason to seek to effect a change.

It would not be surprising if a spirit of speculation should soon develop in pig iron and other partly manufactured products. Operators in other merchandise have been attracted by the signs of reviving trade in iron and steel and are gathering information to enable

them to form an intelligent conception not only of existing conditions but also of the probable course of trade in the future. If manufacturers were willing to sell on a margin, or to give options covering a reasonable time, these operators would "take a flyer" and see what the iron trade could do for them as compared with wheat, corn, cotton oil or stocks. They think that after the extreme depression of the past two years iron is "due to rise," and if possible they would like to get some benefit from the advance. Storage companies in different sections of the country are now offering such facilities for speculative movements in merchandise that the inability to get options from manufacturers or to buy from them on margins will not deter the onset of speculators if they decide to invade the iron trade. We give this information for the benefit of our readers that they may see how the prospects of the iron trade are regarded in the estimation of outsiders who are free from the influences affecting the consumer of iron. The latter is too often apt to be biased by the demand for or price of his own products, and will close his eyes to the possibility of an advance in raw material because his immediate business shows no improvement.

The Foundrymen's Association.

We devote considerable space this week to the proceedings of the first annual meeting of the Foundrymen's Association of Philadelphia, because the aims and methods of that body deserve the careful attention of all who melt iron in this country. President Schumann's address, which we print in full, draws a vivid and, we believe, a true picture of the attitude of founders to one another and the unfortunate results, in a business way, which have grown out of this condition of affairs. Frequent and free intercourse between those engaged in the same general line of business has proved too valuable a means of improvement and progress to be ignored by intelligent men. Mystery and enmity have long ceased to be regarded as the first requisites to a manufacturer's success. On a good many questions common interest demands a close co-operation, and on others an interchange of views is profitable.

Mr. Schumann's plans are ambitious, and may suffer somewhat on that account. We question whether one organization, however cleverly it may be conducted, can do equal justice to business and technical questions alike. The latter may well be subordinated to the former. With the ultimate object of improving the returns on the capital invested, the wisest course would be to abstain from any direct attempt to fix prices. We know that in any body of this kind, when it reaches a certain strength, there are always those who voice the conviction that a price-list can be agreed upon. Nothing, in the long run, could be more fatal to an interest like the foundry trade.

But indirectly a good deal can be accomplished by cutting down unnecessary

expenses, stopping leaks, and systematizing the business. The knowledge that the founders are not at daggers drawn, even if they are competitors, is sure to have some effect upon the more thoughtful workingmen in their employ.

The Philadelphia association has made a splendid start. Its example should be followed in every large city or district. When once a number of such local bodies have been formed, they could be very quickly welded together into a national association which would deal with broader questions at annual meetings.

Changes in the Metal Exchange.

On November 1 the New York Metal Exchange resumed regular calls and the publication of a daily market report. They were discontinued about a year ago. Secretary E. J. Shriver says that this action was taken because wholesale prices were distributed to the retail trade, and because non members were given practically the same advantages as members. The resumption is due to a change of sentiment among the members.

Some time ago a movement was started to re-establish the calls. It gained support from members who desired the report re-established, and by a combination of the two factions both measures were carried.

The abolition of the calls and report a year ago was a compromise between a party which desired to wind up the affairs of the exchange and a second interest which desired its continuance. The present disagreement has revived this question of dissolution, and will undoubtedly be given consideration at the April annual meeting.

OBITUARY.

HOWARD LOCKWOOD.

Howard Lockwood, of the firm of Howard Lockwood & Co., printers and publishers, and founder of the *Paper Trade Journal*, died at his residence, 145 West Fifty eighth street, New York City, on the 4th inst. The cause of death was angina pectoris. Mr. Lockwood was born at White Plains, Westchester County, N. Y., on March 9, 1846. His father, Gen. Munson I. Lockwood, was a lineal descendant of Robert Lockwood, first of the name in the United States, an emigrant from England in 1630. After completing his education Howard Lockwood removed to New York City, and in 1865 he was employed in a paper warehouse in Duane street, where by paying strict attention to business he soon acquired a thorough knowledge of the paper trade and processes of paper manufacture. Believing that the paper business required a newspaper to represent its constantly developing energies, he established in 1872 the *Paper Trade Journal*, from which has grown the large business known as the Lockwood Press. He was an active member of the Typothetæ of New York, and represented it at the meeting in Chicago in 1887, which resulted in the organization of the United Typothetæ.

PERSONAL.

William Kent, consulting engineer and metallurgist, has removed his office to 35 Warren street, New York.

Geo. Strickler, Columbiana, Ohio, has accepted a position in the mechanical department of F. E. Myers & Bro.'s pump and hay tool works, Ashland, Ohio.

Dundee Prices for Castings.

Since the report of the meeting of the Foundrymen's Association of Philadelphia had gone to press, we have received from the secretary, Howard Evans, the following full report of the prices for castings received by the Dundee Association of Engineers and Iron Founders:

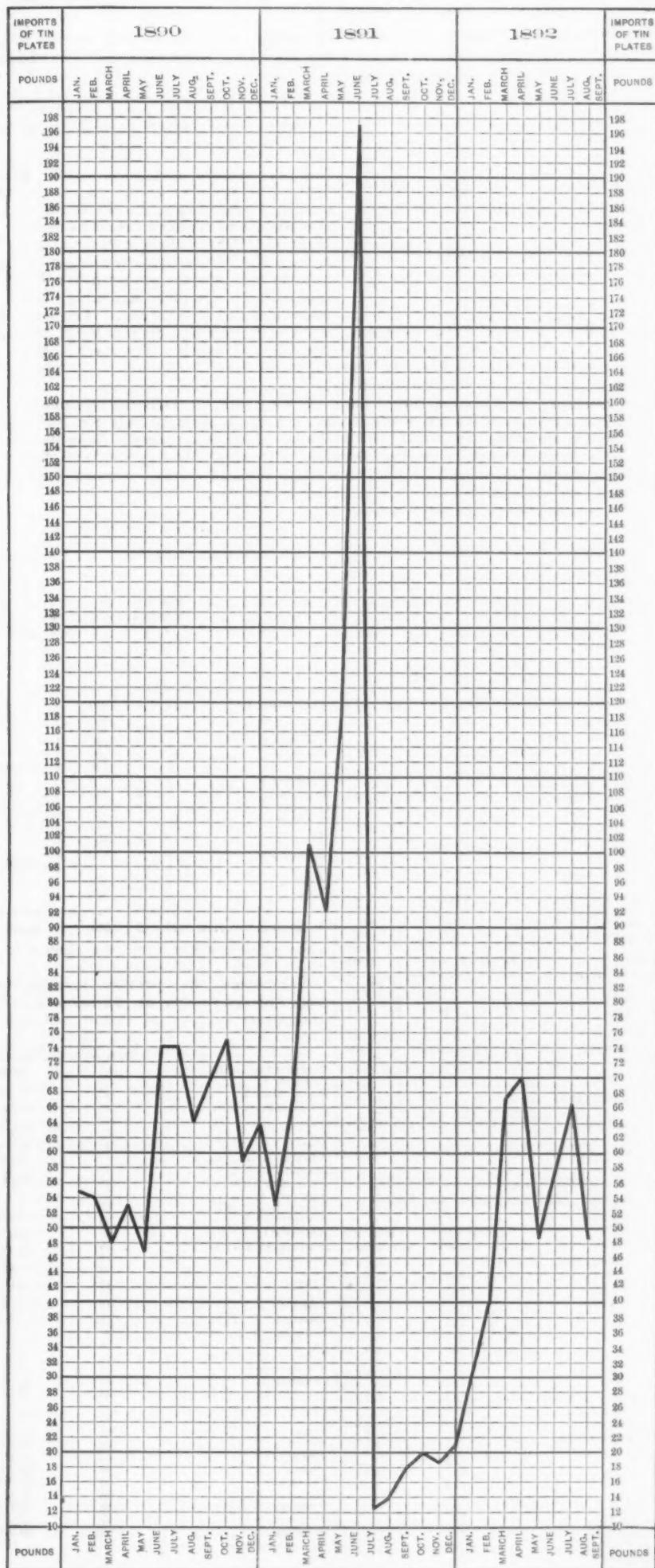
	Per pound.
Pulley and drum castings	\$0.03 1/2
Pulley and drum castings .....	.00 1/2
Wheel and pinion castings 1 pound and under, by arrangement .....	.07
Wheel and pinion castings above 1 pound to and inclusive of 3 pounds .....	.06
Wheel and pinion castings above 3 pounds to and inclusive of 7 pounds .....	.05 1/2
Wheel and pinion castings above 7 pounds to and inclusive of 14 pounds .....	.05
Wheel and pinion castings above 14 pounds to and inclusive of 28 pounds .....	.04
Wheel and pinion castings above 28 pounds to and inclusive of 56 pounds .....	.03 1/2
Wheel and pinion castings above 56 pounds to and inclusive of 112 pounds .....	.03
Wheel and pinion castings above 112 pounds to and inclusive of 112 1/2 pounds .....	.02 1/2
Twisted wheels and spur and bevel combined from 7 cents to 5 1/2 cents per pound, according to pitch .....	.02 1/2
Wheel and pinion castings below 14 pounds and twisted wheels and spur and bevel combined when cast split, 1/4 cent per pound above list rate .....	.02 1/2
Other castings 1 pound each and under, by arrangement .....	.05 1/2
Other castings above 1 pound to and inclusive of 3 pounds .....	.04 1/2
Other castings above 3 pounds to and inclusive of 7 pounds .....	.03 1/2
Other castings above 7 pounds to and inclusive of 14 pounds .....	.03
Other castings above 14 pounds to and inclusive of 28 pounds .....	.02 1/2
Other castings above 28 pounds to and inclusive of 112 pounds .....	.02
Other castings above 112 pounds to and inclusive of 112 1/2 pounds .....	.01 1/2
Other castings above 112 1/2 pounds, as per arrangement .....	.02 1/2
Straight flanged pipes from pattern .....	.02 1/2
Straight flanged pipes from loam .....	.03 1/2
Bends and branches pipes from pattern .....	.03
Bends and branches pipes from loam .....	.04
Weights over 7 pounds and common fire bars .....	.02
Quarterly accounts subject to 2 1/2 per cent. discount	\$8 00
Molders' wages, per week	5 00
Molders' helpers, per week	\$11 to 12 00
Pig iron from	\$11 to 12 00

Vessels Building on the Lakes.

The following figures are compiled from the last issue of the *Marine Review*: Lake shipbuilders now have contracts to build during the coming winter, for delivery about the opening of navigation, 49 vessels, valued at \$6,909,500. The record in number of vessels and aggregate value for this year is very much ahead of the two previous years, but the carrying capacity of large freight steamers is somewhat smaller than in any year for six years past. This is due largely to the fact that three of the most important steel yards are crowded with work on large passenger vessels. Twenty-eight freight steamers and consorts, of 68,470 gross tons capacity, will, however, be added to the fleet of this class of vessels in the spring. The following table shows the number and value of contracts on November 1 of this year as compared with contracts on the same date in previous years. The totals represent simply the winter work of the shipyards and not their entire work for the several years:

Winter of	No. of boats.	Capacity. Gross tons.	Valuation.
1886-87.....	31	65,750	\$4,074,000
1887-88.....	60	108,525	5,325,000
1888-89.....	59	100,950	7,124,000
1889-90.....	56	124,750	7,866,000
1890-91.....	38	77,950	5,337,000
1891-92.....	45	76,000	4,896,000
1892-93.....	49	68,470	6,909,500
Total.....	338	632,395	\$44,531,500

In the Danish West Indies, as in Bermuda, there is a tendency of population to drift toward the United States.



FLUCTUATIONS IN THE IMPORTS OF TIN PLATES, IN MILLIONS OF POUNDS.

Tin-Plate Importations.

In response to a number of inquiries we print below an official statement obtained through the courtesy of the Bureau of Statistics, of the imports, monthly, of tin plates, terne plates or taggers tin, from January, 1890, to August, 1892, inclusive:

Monthly Importations of Tin and Terne Plates.

Months. 1890.	Pounds.	Values.
January	54,809,779	\$1,722,756
February	54,055,297	1,704,038
March	48,609,428	1,561,774
April	53,077,974	1,734,149
May	46,914,081	1,511,525
June	44,270,293	1,297,666
July	73,908,555	2,277,942
August	64,246,011	1,902,128
September	69,883,100	2,180,791
October	74,955,185	2,363,704
November	59,063,536	2,042,459
December	64,151,849	2,191,196
1891.		
January	52,942,064	1,825,081
February	66,764,466	2,356,853
March	101,174,507	3,646,509
April	92,163,462	3,392,274
May	119,442,015	4,421,364
June	197,604,333	7,016,619
July	12,561,141	425,963
August	13,993,524	434,850
September	17,861,830	545,701
October	20,054,856	633,308
November	18,511,212	553,347
December	21,181,848	638,376
1892.		
January	30,612,209	893,754
February	42,338,245	1,240,571
March	67,498,960	1,940,060
April	70,489,102	1,973,840
May	48,804,395	1,391,810
June	58,268,871	1,643,902
July	66,575,730	1,867,362
August	49,062,988	1,391,113

In order to render these fluctuations clearer to the eye than a glance at a series of figures conveys the information, we have prepared the accompanying diagram.

The great fluctuations of the year 1891 were of course due to the effort to bring in tin plate before the new duty went into effect, and the heavy stocking of the market, which curtailed subsequent importations. Still, the total imports of the year 1891 were not as great as those of 1890, having been 734,255,267 pounds in 1891, against 737,926,069 pounds in 1890, an average for the two years of 61,340,889 pounds monthly. For the first eight months of the current year the imports averaged 54,206,315 pounds per month.

Unfortunately, the quantities exported under the drawback clauses are not given monthly, being available only for the fiscal years ending June 30. The following table gives the quantities imported for consumption in the United States, and the quantities imported to be sent out under the drawback arrangement; the balance, the third column, representing the apparent home consumption, neglecting stocks. The figures for the fiscal year ending June 30, 1892, are not available, so far as the exports under drawback are concerned:

*Imports and Re-exports under Drawback of
Tin Plate. Fiscal Years.*

Year ending June 30.	Quantity entered. Pounds.	Quantity re-exported under draw- back clause. Pounds.	Apparent home con- sumption. Pounds.
1884.....	527,881,321	97,415,089	430,466,232
1885.....	505,559,076	127,125,903	378,433,173
1886.....	574,098,405	136,539,316	437,560,952
1887.....	570,943,570	123,203,627	447,439,762
1888.....	632,224,296	108,271,542	523,952,754
1889.....	727,945,972	166,067,740	561,888,232
1890.....	674,668,579	150,112,007	524,556,572
1891.....	1,067,716,541	149,599,649	908,116,862
1892.....	422,176,202		

The importations of the fiscal years 1891 and 1892 average about 740,000,000 pounds, while estimating the 1892 exports at 150,000,000 pounds, the apparent home consumption of the two years would be about 591,000,000 pounds.

An Increased Iron Output.

DECLINING STOCKS.

In spite of quite a notable increase in the current production of pig iron, the stocks of metal showed quite a heavy decline during October, so that, evidently, consumption was still considerably ahead of production during that month. The indications point to a continuance of this feature during November, so that the basis metal of the whole industry is getting into better and better shape statistically. For November 1 we have:

	Furnaces.	Tons per week
Anthracite	69	30,869
Coke	133	130,673
Charcoal.	42	9,540
Total November 1.	244	171,082
Total October 1	236	158,027
Increase.	8	13,055

The weekly product of all the furnaces on November 1 compared as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week	Capacity Gross tons
November 1, 1892.	244	158,020	158,020
October 1.	236	158,020	158,020
September 1.	236	151,640	151,640
August 1.	233	155,120	155,120
July 1.	254	169,150	169,150
June 1.	200	173,670	173,670
May 1.	268	177,580	177,580
April 1.	280	186,460	186,460
March 1.	306	193,900	193,900
February 1.	308	187,380	187,380
January 1.	306	189,060	189,060
December 1, 1891.	298	188,130	188,130
November 1.	304	187,680	187,680
October 1.	306	181,610	181,610
September 1.	299	170,840	170,840
August 1.	296	169,570	169,570
July 1.	293	171,110	171,110
June 1.	253	146,780	146,780
May 1.	297	115,500	115,500
April 1.	223	113,480	113,480
March 1.	257	134,520	134,520
February 1.	294	146,050	146,050
January 1.	302	167,590	167,590
December 1, 1890.	340	183,840	183,840
November 1.	342	177,950	177,950
October 1.	336	179,260	179,260
September 1.	323	171,770	171,770
August 1.	324	164,790	164,790
July 1.	336	175,720	175,720
June 1.	345	180,790	180,790
May 1.	344	180,000	180,000
April 1.	344	178,470	178,470
March 1.	343	180,990	180,990
February 1.	334	173,660	173,660
January 1.	333	174,000	174,000
December 1, 1889.	323	169,150	169,150
November 1.	323	165,220	165,220
October 1.	311	151,050	151,050
September 1.	294	134,060	134,060
August 1.	286	145,890	145,890
July 1.	285	141,410	141,410

The status of the anthracite furnaces is shown in the following table:

Anthracite Furnaces, November 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York.....	19	4	2,056	15	5,756
New Jersey.....	15	3	1,538	9	12,624
Spiegel.....	3	3	216	0	0
Pennsylvania:					
Lehigh Valley...	46	26	10,084	20	7,216
Spiegel.....	1	0	0	1	56
Schuylkill Valley.	30	11	5,706	19	7,444
U. S u s q uehanna Valley.....	16	7	2,022	9	1,526
L. S u s q uehanna Valley.....	17	7	4,538	10	2,436
Lebanon Valley..	15	8	4,100	7	3,264
Totals.....	150	69	30,800	90	20,712

For a number of months past our records of active anthracite furnaces show the following:

	Furnaces in blast.	Capacity per week
November 1, 1892	69	30,840
October 1	69	29,960
September 1	66	27,480
August 1	66	28,840
July 1	72	31,776
June 1	76	33,296
May 1	81	35,474
April 1	84	36,480

March 1.....	89	38,678
February 1.....	92	38,124
January 1.....	94	38,307
December 1, 1891.....	85	34,900
November 1.....	87	33,803
October 1.....	85	32,456
September 1.....	82	31,214
August 1.....	88	32,886
July 1.....	92	37,892
June 1.....	91	36,561
May 1.....	90	35,331
April 1.....	91	36,597
March 1.....	93	38,543
February 1.....	95	40,213
January 1.....	101	43,164
December 1, 1890.....	105	43,471
November 1.....	104	42,141
October 1.....	100	38,622
September 1.....	104	39,111
August 1.....	106	41,011
July 1.....	112	42,541
June 1.....	117	45,141
May 1.....	123	46,911
April 1.....	119	46,111
March 1.....	115	45,798

On the 12th ult. Cedar Point, and the second Hudson, in New York, went out, leaving only four anthracite furnaces running, Charlotte having been added. In New Jersey the Passaic spiegel furnace resumed during October. The second Swede has started, in the Schuylkill Valley, while the Lehigh Valley records no changes. The fifth Lackawanna furnace went in on the 14th ult., while in the Lebanon Valley Robesonia blew out on the 31st ult.

The following coke plants were producing:

Coke Furnaces, November 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Num. out of blast.	Capacity per week.
New York.....	6	3	3,252	3	1,551
Pennsylvania :					
Pittsburgh district.....	24	21	34,767	3	3,416
Spiegel.....	2	2	2,985	0	0
Shenango Valley.....	18	5	5,402	13	9,840
Juniata and Conemaugh Valley.....	17	6	5,835	11	4,336
Spiegel.....	1	1	615	0	0
Youghiogheny Valley.....	3	0	0	3	2,218
Miscellaneous.....	1	1	621	3	1,073
Maryland.....	5	1	1,260	4	4,476
West Virginia.....	1	0	0	1	256
Wheeling District.....	9	6	6,821	3	1,815
Ohio :					
Mahoning Valley.....	15	8	8,508	7	4,844
Central & Northern.....	11	9	7,309	2	1,300
Hocking Valley.....	12	1	620	11	2,968
Hanging Rock.....	15	8	1,620	7	1,929
Indiana.....	2	0	0	2	424
Illinois.....	19	11	17,571	8	8,600
Wisconsin.....	4	4	3,368	0	0
Missouri.....	6	1	783	5	2,741
Minnesota.....	1	0	0	1	704
Colorado.....	3	1	485	2	956
The South :					
Virginia.....	20	10	5,736	10	5,464
Kentucky.....	4	3	1,263	1	322
Alabama.....	38	23	16,841	15	7,886
Tennessee.....	13	8	4,842	5	1,624
Georgia.....	2	0	0	2	1,048
North Carolina.....	1	0	0	1	9
Totals.....	256	130	130,673	123	70,714

As compared with previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
November 1, 1892	133	190,672
October 1.	128	118,896
September	128	114,536
August 1.	131	117,988
July 1.	140	127,432
June 1.	145	128,856
May 1.	147	132,312
April 1.	152	138,112
March 1.	163	143,496
February 1.	167	138,264
January 1.	163	138,616
December 1, 1891	162	142,744
November 1.	162	142,152
October 1.	163	135,992
September 1.	161	127,664
August 1.	154	125,736
July 1	150	122,424
June 1.	124	100,160
May 1.	98	70,528
April 1.	96	67,576
March 1.	113	85,000
February 1.	125	94,472
January 1.	143	112,152
December 1, 1890.	168	127,688
November 1.	168	122,560
October 1.	170	127,240
September 1.	156	119,752
August 1.	150	113,040
July 1.	163	120,672
June 1.	167	123,344
May 1.	169	122,480

April 1	173	121,560
March 1	169	122,506
February 1	169	118,508
January 1	169	119,396
December 1, 1889	162	116,319
November 1	160	112,269
October 1	154	102,454
September 1	141	96,744

The most pronounced increase has come from the Pittsburgh district, being alone 7300 tons weekly. This is due to the blowing in of two Isabella furnaces, and of Edith Furnace, against one Eliza which went out. It is due also to the extraordinary output of some plants, during October, in the Shenango Valley. Douglas is out. One of the Raney & Berger stacks is to start soon. There have been no changes in the Juniata and Conemaugh, or in the Wheeling district. In the Mahoning Valley, Mary resumed in October. The current make of Illinois has been reduced by the banking of Iroquois. Wisconsin is producing more heavily through the starting of Minerva.

In the South, one DeBardelben, one Eureka, and one Woodward have been added to the list of active furnaces in Alabama; Cittico, in Tennessee, having also been started.

The position of the charcoal furnaces was as follows :

Charcoal Furnaces, November 1

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England.....	13	8	320	9	640
New York.....	5	4	376	1	210
Pennsylvania.....	13	3	170	10	770
Maryland.....	7	2	235	5	400
Virginia.....	13	1	100	12	727
Ohio.....	9	6	506	3	246
Kentucky.....	3	0	0	3	935
Tennessee.....	7	4	980	3	350
Georgia.....	3	1	279	2	230
Alabama.....	13	4	1,130	9	1,810
Michigan.....	20	10	3,370	10	2,765
Missouri.....	2	2	620	0	0
Wisconsin.....	4	2	1,220	2	465
Texas.....	4	0	0	3	904
Washington.....	1	0	0	1	170
Oregon.....	1	1	55	0	0
Totals.....	118	42	9,540	76	11,344

As compared with previous months, the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
November 1, 1892	43	9,540
October 1	39	9,174
September 1	42	9,667
August 1	41	8,331
July 1	42	9,954
June 1	48	11,613
May 1	40	10,100
April 1	44	10,850
March 1	50	11,734
February 1	49	10,991
January 1	48	11,164
December 1, 1891	52	11,033
November 1	55	11,731
October 1	58	13,150
September 1	56	11,968
August 1	54	10,980
July 1	50	10,801
June 1	44	10,066
May 1	39	9,730
April 1	41	9,295
March 1	51	10,390
February 1	56	11,366
January 1	59	12,280
December 1, 1890	67	12,738
November 1	70	13,262
October 1	66	13,399
September 1	63	12,904
August 1	59	10,746
July 1	61	12,511
June 1	61	12,312
May 1	52	10,699
April 1	52	10,804
March 1	59	12,066
February 1	58	11,378
January 1	59	11,485
December 1, 1889	66	12,779
November 1	67	12,893
October 1	63	12,047
September 1	60	11,387

There have been started during October Muirkirk in Maryland, Liberty in Virginia, Mt. Vernon in Ohio, Newberry in Michigan, and Sligo in Missouri.

Stocks.

The aggregates of the figures furnished to us relating to stocks are as follows, the same furnaces reporting:

Stocks:	October 1.	November 1.
	Tons.	Tons.
Anthracite pig.....	161,734	141,416
Coke pig.....	491,348	450,238
Charcoal pig.....	208,135	192,548
Total.....	861,217	784,232

It will be observed that the reduction in coke iron stocks has been most marked, and that there has also been quite a decline in anthracite pig. The figures are a good indication of the course of consumption, but as we have frequently stated are incomplete, and to not make any pretensions to statistical accuracy.

MANUFACTURING.

Iron and Steel.

Norristown Steel Company, Norristown, Pa., have received orders for an exceptionally large steel casting for the Morgan Engineering Company of Alliance, Ohio. It is a hydraulic riveter stake of complicated form, which is calculated to weigh over 35,000 pounds. The business of the Norristown Steel Company is reported as being exceedingly good, the works having been employed to their full capacity from the commencement of operations last year, with orders now in hand or expected which will keep them busy for some time to come. The contracts for castings for Government dock yards are almost completed. It is not improbable that some extensive additions to the company's plant will be made in the near future.

J. Wood Bros. & Co., Conshohocken, Pa., report a better business in light plates than ever previously experienced by them. The demand is large and widely distributed, a very considerable California trade having lately developed; and as far as can be foreseen, the firm anticipate a steady continuance of good business for the winter months. All their mills are running full on double turn.

The Muncie Iron & Steel Company, a new organization, will build a rolling mill at Muncie, Ind., to manufacture merchant iron and steel. The plant as at present contemplated will be equipped with a 16-inch and a 10-inch train of rolls. The Indiana Bridge Company of Muncie have been awarded the contract for the erection of the buildings, which are to be of iron and steel. W. J. Storey, formerly of Youngstown, Ohio, will be superintendent. Other officers are J. C. Grasheimer, president, and Edward Tuhey, secretary and treasurer. The construction of the mill will be actively pushed in order to get into operation at as early a day as possible. The addition of this establishment to the manufacturing enterprises at Muncie is a direct outgrowth of the renewed efforts of the people of that city to invite manufacturers to examine into the advantages of the location.

The Bass Furnace of Rock Run, Ala., is enlarging its furnace at that place. Its height is to be increased from 45 to 52 feet and the bosh from 9 to 10 feet. The company are operating their iron mines and accumulating ore, expecting to go into blast by December 1.

The Rome Rolling Mill Company, manufacturers of cotton ties, Rome, Ga., have gone into the hands of a receiver for the second time. C. A. Thornwell, on behalf of the creditors, filed a bill for the appointment of a receiver and Judge Henry appointed Sheriff J. C. Moore as temporary receiver and he has taken charge of the property of the company. The amounts claimed by the bill are small, but it is stated that there is \$3500 due the hands. The final hearing of the bill for permanent receiver will be heard November 9.

The North Alabama Furnace at Florence, Ala., was reported as being about to go into blast, but inquiries at that point develop the fact that negotiations to this end are not yet concluded. It is thought however that a favorable termination may be looked for soon, and that the furnace will begin to melt within the next 60 days.

The new furnace plant of the Buffalo Furnace Company, Buffalo, N. Y., will be in operation by January 1. The blast furnace is a model one, and will have a capacity of 300 tons a day. It is 80 feet high and 18 feet bosh. An iron incline bridge 300 feet long is now being built to run from the stockhouse to the top of the furnace. It is the intention of the company to build a complete steel plant as

soon as they are well established. The officers are L. C. Hanna of Cleveland, president; Frank B. Baird, vice-president; A. S. Hubbell of Buffalo, secretary, and C. C. Bolton of Cleveland, treasurer. The consulting engineer is Julian Kennedy of Pittsburgh. Walter Kennedy is superintendent of the works.

Jenkins Bros. & Lingle of Bellefonte, Pa., will rebuild the rolling mill destroyed by fire some time since.

The Douglas Furnace of Sharpsville, which was blown in six weeks ago under a lease by Western capitalists, was shoveled out last week. It was discovered that a new lining was necessary, and it will require several weeks to put the plant in shape to run again.

The Ohio Steel Company, Youngstown, are excavating for foundations for their large new machine shops. The exact location of the main buildings will be determined in a few days.

The steel rolls in the Shenango Valley Steel Company's plant, at New Castle, broke down last Friday. It will take four or five days to repair the damage. The rod mill is running again.

The Grace Furnace of the Brier Hill Iron & Coal Company, Youngstown, has made a most excellent showing during the past month. It turned out 7583 tons of Bessemer iron, making an average of 242 tons per day, and making 400 consecutive casts of No. 1 iron.

The Mabel Furnace of Perkins & Co., Sharpsville, is doing remarkably good work during the present blast, making 185 tons per day of strictly first class foundry. She has been in blast nearly three months.

The Youngstown Car Mfg. Company are building a large number of cars for the Lake Erie Railroad Company. This company have several good-sized orders booked ahead.

The Claire Furnace Company, Sharpsville, are making very extensive improvements on their plant and expect to resume operations early in January.

The trouble at the Mahoning Valley Iron Company's Mills, Youngstown, in the plate-mill department has not yet been settled. The employees refuse to go back on the new basis and the company say they will start the mill with other men if the old hands will not soon resume work.

A statement sent out from Zanesville a few days ago purposed to show a concerted plan on the part of mill operators in eastern Ohio in general and the Mahoning and Shenango valleys in particular to continue next year the fight made against the Amalgamated Association. One of the leading steel men in this section, whose business and private relations with the managing men of the Carnegie Company are probably closer than those of any other mill operator in the valleys says: "I know positively that the mill owners in Ohio and Pennsylvania have never considered any such campaign, so far as any joint action is concerned. In the first place, it is folly to talk about fighting the A. A. The mill men have no objection to the Amalgamated or any other association of workingmen. We do sometimes object to the demands made in the name of such associations, trades unions or whatever they might happen to be called, but we don't care anything about their associations as such. When they make demands for certain wages it is a business matter pure and simple, and we treat it as such. It makes no difference whether the demands come from the members of an association or from the workmen as individuals. It is what they want, whether union or non-union men want it, that we have to consider. Then, if, as a business proposition, we decline to meet their terms, some fool who knows no better, or some scoundrel who does know better, gets on the platform or into the newspapers to tell these men the tariff policy of the United States Government is at the bottom of their failure to make the business deal in question. As to the refusal of mill operators to do business with the Amalgamated Association, they will refuse when it is good business policy for them to do so."

Arrangements have been made for the improvement of the West Duluth Furnace, owned by the Duluth Iron & Steel Company of West Duluth, Minn., and operated under lease by the West Duluth Furnace Company. A new blowing engine is to be put in, the boiler capacity increased, and the capacity of the plant increased from 100 to 200 tons a day. It is understood that the West Superior Iron & Steel Company will continue to use the entire output of the furnace.

The Burden Iron Company, Troy, N. Y., are removing the old buildings in front of their main entrance and will lay out a beautiful graded lawn, with flower beds, in the spring.

Iroquois Furnace, at Iroquois, Ill., has been banked on account of the breakage of the blowing engine. Repairs will be made as soon as possible and the furnace started up.

The Belle City Malleable Iron Company have been organized at Racine, Wis., with a capital stock of \$10,000.

The Salem Furnace at Roanoke, Va., has blown in again after a two weeks' idleness during which a new lining was put in.

The Carnegie Steel Company, Limited, last week removed the special officers who have been guarding the Upper and Lower Union mills at Pittsburgh ever since the commencement of the strike. The mills are now being operated successfully to their full capacity, and there is no further need of the services of these officers.

Nimick, Jack & Tyson, manufacturers of cold-rolled steel, whose plant at Pittsburgh was destroyed by fire some time since, have decided to locate at Kensington, Pa., about 20 miles from Pittsburgh. Their main building will be 200 x 100 feet in size, and a number of other smaller buildings will be erected. The cost of building the new plant is estimated at from \$75,000 to \$100,000.

The Brown - Bonnell Iron Company of Youngstown, Ohio, have given the contract for the iron work for their new structures to the King Bridge Company, Cleveland, Ohio. They will consist of two buildings, each 230 x 60 feet, connected by a building 50 x 60 feet.

The puddling department of the Soho Iron & Steel Works of the Moorhead-McCleane Company, at Pittsburgh, which has been idle for some weeks, has been started up on single turn. All other departments of this plant except the blast furnace are now in full operation, and in all probability the puddling department will be put on double turn in the near future. Soho Furnace, which is idle, as noted above, may possibly resume operations before the first of the year.

The Carnegie Steel Company, Limited, of Pittsburgh have notified the Navy Department that they have completed at the Homestead Steel Works about 200 tons of armor plate, and will make deliveries of same as soon as the results obtained from the test plate are made known. This test plate is now on its way to the Indian Head proving grounds, and is of nickel steel 8 inches thick. The group which it represents is for the side armor of the "New York," the construction of which has been delayed somewhat by the failure of the Carnegie Steel Company, Limited, to make earlier shipments of armor plate.

Machinery.

John Wood, Jr., Schuylkill Foundry & Machine Company, Conshohocken, Pa., has recently received orders for Wood's Water Tube Boilers, with their castings, setting, &c., from the following concerns: One 450 horse-power for Lukens Iron & Steel Company, Coatesville, Pa.; 500 horse-power for John & James Dobson, Falls of Schuylkill, Pa.; 800 horse-power for Berwind-White Coal Mining Company; 1000 horse power for the Calumet Electric Street Railway, Chicago, Ill.; and 500 horse-power for the World's Columbian Exposition, Chicago. We learn that all departments of the Schuylkill Foundry and Machine Works are very busy on castings and machine work, as well as in the boiler branch. It is likely that an extension of facilities will shortly be undertaken to meet the growing business of the establishment.

The Mahoning Foundry & Machine Company of Danville, Pa., have bought out the business and plant of the Enterprise Machine Works of that city. This will enable the Mahoning to extend their line of work considerably, and to include engines, boilers and everything pertaining to a general machine business, in addition to the larger class of work for which the Mahoning have secured a high reputation. We are also informed that they have leased the extensive premises of the Danville Nail & Mfg. Company, which will be used in connection with their other departments, but not in the nail business.

The shops of the Baldwin Locomotive Works, at Philadelphia, are reported as being unusually active just now, work on a number of large contracts being in hand. Over 4500 men are employed in the various departments, and an average of 17 locomotives are being turned out weekly. Orders are now on the books for 45 freight engines of consolidation type, class "R," for the Pennsylvania Railroad Company; 50 engines of various types for the Philadelphia & Reading Railroad Company; 35 passenger and freight locomotives for the Central Railroad of Brazil; three compound rack rail engines for the Marston & Pike's Peak Railway, and one electrical locomotive of a special design for the North American Company.

Geo. F. Blake Mfg. Co., 95-97 Liberty str e New York, are putting in a number of boiler feed pumps in connection with various engines which are to furnish power in Machinery Hall at the Columbian Exposition, both of the

Blake & Knowles type. They are now setting up vertical twin-cylinder air pumps and jet condensers in connection with McIntosh & Seymour engines. To supply a 200 horse-power Russell compound engine they are putting in a horizontal air pump and condenser, and a similar pump in connection with a 200 horse-power McEwen compound engine; also two duplex boiler feeders. The Knowles section of the same corporation are erecting a vertical twin-cylinder air pump for a 600 horse-power Russell engine and a duplicate for a 500 horse-power Atlas compound engine, together with two single boiler feed pumps of the standard plunger pattern; also to serve a 1200 horse power compound Atlas engine, a horizontal compound air pump and jet condenser; also to go with a Watertown steam engine a 300 horse-power vertical twin cylinder air pump and jet condenser. At the Centennial Exposition in Philadelphia this company exhibited some working models of their various pumps, which, they say, attracted more attention than their regular exhibit. Profiting by this experience, they intend in the coming World's Fair to make an especial effort in this direction, and will show working models of standard pump designs, working models of air and circulating pumps similar to those now on the "Dolphin," "Maine" and other United States war vessels. Among the number will be a compound duplex condensing water-works engine, single fire pump, vertical duplex admiralty feed pump, horizontal duplex feed pump, and others as yet not decided on. These models will be nickel plated, in perfect and thorough working order. The combination air and circulating pump will show a vacuum of 26 inches, and throw a stream about 16 feet. They have been assigned nearly 600 square feet of space.

The sale of the Rome, N. Y., Locomotive Works, which took place a few days ago, has placed the plant in the hands of the first consolidated mortgage bondholders. It is understood that manufacturing is not to be resumed at present. The shops have been kept in good repair, however, since they were shut down, and could start up on very short notice. In fact, a limited amount of work has been going on right along, and a small number of men are employed at the plant. While the works could go on and make locomotives, it is thought that they might not be successful in competing with larger concerns with their present machinery. Many thousands of dollars would have to be expended for new and improved machinery and appliances. The market for locomotives, too, is said to be dull. There is no intention, however, of dismantling or abandoning the plant. It is said that it will be used as a manufactory of some sort as soon as some plan is laid out. There is an excellent machine shop, foundry, blacksmith shop, paint shop, &c., which could be used for making machinery of various kinds.

Satisfactory tests of the Snow pumping engine, recently added to the Niagara Falls, N. Y., water works company's plant, have been made. The large stand pipe, holding between 700,000 and 800,000 gallons, was filled inside of six hours.

The E. P. Allis Company of Milwaukee will make more of a specialty than ever of electrical machinery when the new addition to their plant is completed. A 50-ton and a 20-ton electric traveling crane will constitute a part of the equipment of the new machine shop. The outlay will be in the neighborhood of \$250,000. The Allis plant on Clinton street now covers 15 acres, and the company have an embryo plant on a 20-acre tract on South Bay street.

We are informed that the B. F. Sturtevant Company of Boston, Mass., are about extending operations in connection with their Philadelphia branch. The company's agency at 135 North Third street, in the latter city, has been reorganized and the whole establishment added to and improved materially, with the view of facilitating and extending their business in Pennsylvania and neighboring districts. The property on Third street has been purchased by the company and thoroughly refitted, the lower floor as show room and offices, while the upper floors will be used as workshops, where it is intended that a large portion of the goods for local supplies shall be manufactured. An additional force of engineers and draftsmen has been engaged and a complete equipment of machine tools is being provided. A special feature will be made of the metal-working department, which it is proposed to make one of the most efficient shops of its kind in the neighborhood. Special tools have been ordered for the purpose of operating the metal piping on which the efficiency of the Sturtevant blowers so greatly depends.

The Reeves Pulley Company, Columbus, Ind., have just completed the installation of an electric light plant in their wood split pulley factory. This, together with extensive additions in the way of new machinery will

largely increase their capacity. They also report the fact that they are six carloads behind on orders and every machine is being crowded to its utmost.

The Dyersburg Machine Works will rebuild their plant at Dyersburg, Tenn., at once. It was recently destroyed by fire.

A bill has been filed asking for a receiver for the Rome Foundry & Machine Works, Rome, Ga. The hearing of the application is set for November 9.

George R. Lombard & Co., Augusta, Ga., are preparing to enlarge their foundry and machine shop and will erect new buildings.

The Novelty Machine Works, Owensboro, Ky., will enlarge their works and add machinery for making engines, boilers and duplex pumps.

It is reported that the Northwestern Land Association have completed arrangements for the erection of an extensive foundry and machine shop at Huntsville, Ala.

The Whitely Harvester Machine Works have been started at Muncie, Ind., for the first time.

The Dunkirk Engineering Company of Dunkirk, N. Y., have been reorganized and incorporated, for the making and repairing of locomotives, boilers, engines and general machinery. The capital is \$51,000.

It is reported that the Pennsylvania Railroad Company will erect large machine and repair shops at Nanticoke, Pa.

Lidgerwood Mfg. Company, New York, have a new hoisting and conveying device which will be ready about November 11. It is now in use in an uptown gas works in operation every day—being tested.

Another mammoth valve for the New York aqueduct has been shipped by the Kennedy Valve Mfg. Company of Coxsackie, N. Y.

The Fairhaven Iron Foundry Company will erect a new foundry at Fairhaven, R. I., 120 x 65 feet in size.

An addition is being made to the works of the Kelly Foundry & Machine Company, at Goshen, Ind.

The Ball Engine Company of Erie, Pa., are building a 25 x 50 foot extension to their works.

The Evans & Marsden Boiler Works, at Slatington, Pa., will hereafter be known as the Slatington Machine, Boiler & Foundry Company. Additional capital has been secured, and a number of improvements are now under way. Special attention will be given to the manufacture of machinery for mines and quarries.

H. R. Worthington, New York, recently furnished a condenser to the Johnson Company, Johnstown, Pa., to run in connection with a rolling-mill engine of 3500 horse-power. They are now building condensers for electric railways and traction companies, among them one for Buffalo Railway Company, in connection with a 4500 horse-power engine, and others for the Brooklyn & Coney Island Railway Company and the Cuyaeutta Electric Railway Company, which is a new freight line running from Gloversville to Jonesville, N. Y. They are also building a condenser for the Pennsylvania Steel Company, at Steelton, Pa., in connection with a 1100 horse-engine. They have orders in for large mining pump from Cambria Iron Company, Upper Lehigh Coal Company and Mid-Valley Coal Company.

Squire & Homer, founders and machinists, of Galion, Ohio, have just built an addition 40 x 40 feet in size to their foundry, making it 100 x 40 feet, core and cleaning rooms have also been added, and these additions will about double the capacity of the firm.

MISCELLANEOUS.

The Standard Novelty and Electrical Works will soon be incorporated under the laws of Louisiana, with headquarters at New Orleans, La. W. H. Bofinger is interested.

The Hilton Bridge Company of Albany, N. Y., are building the iron bridges to be used as a part of the new block signal system on the Mohawk division of the New York Central & Hudson River Railroad Company's line.

Among recently authorized Illinois corporations are the following: Granite City Steel Company, Granite City, Madison County: capital stock, \$1,000,000; incorporators, F. G. Neidringhaus, William F. Neidringhaus, Thomas K. Neidringhaus and others. Feather River Canal Company, Chicago; capital stock, \$2,000,000; incorporators, Richard L. Creesy, George W. Wilson and B. W. Estabrook. The Columbia National Watch Company, Chicago; capital stock, \$1,000,000; incorporators, W. H. Adams, C. D. Covell and A. L. Allen. The Chicago West Division Gas Company, Chicago; capital stock, \$2,000,000; incorporators, Charles

D. Hauk, August Lueders and Le Grand W. Perce. The Young & Willayer Automatic Mechanical Railroad Block Signal Company, Chicago; capital stock, \$600,000; incorporators, Robert B. Kendall, Gordon H. Knott and Lee F. English. The Excelsior Hardened Copper Company of Chicago; capital stock, \$500,000; incorporators, Peter Johnson, John Seaburg and Seth F. Collins. The Fill Cycle Mfg. Company, Chicago; capital stock, \$50,000; incorporators, Caroline D. Hill, Mark W. Hill and Frank T. Fowler. The Union Fireproof Covering Company, Chicago; capital stock, \$20,000; incorporators, William Hartman, John C. Ferrin and Stephen H. Graver.

The Boggs Plow Company have been organized at Rome, Ga., by T. K. Boggs and associates to manufacture a patented combination plow.

It is stated that the Pennsylvania Zinc & Iron Company will erect a furnace at Roanoke, Va.

The Gendron Iron Wheel Company of Toledo, Ohio, have found it necessary to increase their plant in order to accommodate their growing business. The contracts have been let for the construction of a seven-story building 50 x 100 feet in size, to be completed by the first of the new year.

The Norwich Insulated Wire Company have been incorporated in Hudson County, N. J., with a capital stock of \$375,000, for the purpose of manufacturing insulated electric wire, cables, &c., at Harrison, N. J.

It is said that the Pennsylvania Railroad Company will shortly begin the construction of the largest freight car ever built. It will have 32 wheels and a carrying capacity of 124 tons, and will be used for transporting the 124-ton cannon which the Krupp Company of Essen, Prussia, will send to the World's Fair.

It is said that Adam Burgess, a Belgian manufacturer, has decided to build a big gun factory in Buffalo, N. Y. Associated with him are Mills W. Barre, president of the bank of Olean, N. Y., and O. L. Snyder of Buffalo. They have purchased a site in that city, and have begun the erection of a five-story factory that will employ 500 men. It is expected that within three months the factory will be making guns.

A bill in equity has been filed seeking to restrain L. J. Harris, president, from disposing of the assets of the Harris Palatine Car Company, and asking for a receiver. Mismanagement is alleged. The company have been seeking to establish works for a long time, but have failed to secure the backing, in the form of land gifts and subscriptions to stock, which they demanded.

W. T. Mersereau Company, manufacturers of brass goods at Newark, N. J., have failed. The assets are said to be about \$90,000, while the liabilities reach \$120,000.

A company has been organized at Beatrice, Neb., to manufacture the Huffman barb wire.

The Springfield Steel Casting Company's plant, at Springfield, Ohio, has been leased by John W. Galvin of Portsmouth, Ohio, who will operate the plant with about 75 employees.

The United States Car Company have leased the works of the United States Rolling Stock Company, located at Hegewisch, Ill. (136th street, Chicago), Urbana, Ohio, Anniston, Ala., and New Decatur, Ala. The company are prepared to furnish axles from the forge at Anniston, Ala. G. W. Ristine is general manager, with headquarters at Chicago.

The Washburn & Moen Mfg. Company of Worcester, Mass., recently executed an order for 35 miles of feeder wire, weighing 6 tons to the mile, for street railway work, which is now in use in Brooklyn, N. Y. They are of the opinion that this is the largest order of this material for such a purpose ever given. The various samples now competing for favor were recently tested under the supervision of the New York Board of Fire Underwriters, at Pearl and Elm streets, N. Y., at which trial the Salamander insulation was the only kind that successfully withstood the test. The others, when subjected to an excessive current, were found to be combustible, the insulation having been destroyed. They have recently laid up for the Niagara Power Company what they say is the largest cable for transmitting electric power ever made in this country, and they believe in the world. It consists of eight cables around a central cable, each containing 19 separate copper wires. It is insulated with six braids of heavy cotton yarn and saturated with the well-known weather-proof compound. It is made for convenience in handling in 800 feet lengths. Such as will go in conduits will be covered with lead, while that for overhead work will be insulated as described above. This is to conduct the power generated at Niagara to the various cities and towns as now planned.

TRADE REPORT.

The evidences that the current demand is exceedingly heavy are cropping up in all quarters. Our monthly Pig-Iron report, published elsewhere, shows an increase in the current production of Pig Iron, but at the same time our partial stock returns indicate that a further very heavy reduction has taken place in the quantity of metal on hand. Even at the present increased rate of production, consumption, if continued as recently, is outrunning it.

From all the leading markets come cheering reports in regard to the situation in Pig Iron. Sales are not very large, since consumers are pretty well covered for some time to come, but there is no pressure and the recent advance is firmly established.

Pittsburgh records heavy transactions in Bessemer Pig, the aggregate being about 22,500 tons. Most of it has been placed for delivery during the first quarter of next year at \$14, Pittsburgh, which is now the accepted figure, thus showing an advance from the lowest point of from 30¢ to 40¢ per ton.

Both East and West Soft Steel Billets are quiet, but firm. High prices are being paid for quick delivery, but for next year's business buyers and sellers are apart. A story is going the rounds that a leading Pittsburgh concern has sold 30,000 tons of Soft Steel Billets to a prominent firm of merchants, for future delivery, at as low a price as any named, and that the same firm has bought a round block of Billets from an eastern Pennsylvania mill at a price very satisfactory to the seller.

Reports are cropping up at different points that the Rail manufacturers propose to announce at an early date a reduction in the price to \$28.

Chicago notes that in Finished Iron and Steel deliveries have thus far shown no improvement, thus indicating that the mills are still crowded with orders. Pittsburgh records that the mills are catching up with their Bar orders, while Philadelphia reports a slightly unsettled market in spite of car orders. The latter, it is understood, involve about 7000 cars for the Pennsylvania system.

Eastern Plate mills are complaining that Pittsburgh works are naming low prices, while, in turn, Western concerns claim to be suffering under the eager competition of their Eastern rivals in neutral markets.

There is quite a demand for Muck Bars, and considerable business has been done in Pipe in the Pittsburgh markets, with the usual reflex action upon Skelp. On the latter low prices are being made in eastern Pennsylvania.

A little more interest is being aroused in Scrap Iron and Old Rails. Some large transactions have taken place in the New York market, and there is quite a demand for Old Iron Rails in the Shenango and Mahoning valleys.

The Copper market remains quiet. There are reports of a large purchase of Tin by the leading London manipulator. Lead, Spelter and Antimony are unchanged, while Tin Plates are quiet.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, November 9, 1892.

The special features of the market which are now most conspicuous are—1, the increasing activity in Pig Iron, and, 2, the fact that deliveries of finished product are apparently getting worse instead of better. The mills have by no means caught up with back orders sufficiently to make anything like prompt shipments.

Pig Iron.—The month has started up very well in the way of transactions. Sales of 1000-ton lots of Coke Iron are pleasantly numerous, and it now looks as though November would be a month of very heavy tonnage. Buyers have more faith in the maintenance of prices and are also somewhat inclined to fear an advance. Even when they are well supplied with stock for the next two or three months, they are disposed to enter orders for delivery further ahead. Added to this is the further fact that speculators are beginning to take an interest in Pig Iron and are endeavoring to arrange for the purchase of round lots through storage companies. Prices show no change in quotations made last week, except that small buyers are obliged to pay at least 25¢ per ton more. Lake Superior Charcoal is in good inquiry and the outlook is improving in this direction. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal.....	\$16.50 @ \$17.00
Local Coke Foundry, No. 1.....	13.75 @ 14.25
Local Coke Foundry, No. 2.....	13.50 @ 14.00
Local Coke Foundry, No. 3.....	13.25 @ 13.75
Local Scotch	14.25 @ 14.75
Ohio Strong Softeners.....	16.25 @ 17.00
Southern Coke, No. 1.....	14.75 @ 15.25
Southern Coke, No. 2.....	13.85 @ 14.25
Southern Coke, No. 3.....	13.35 @ 13.60
Southern, No. 1, Soft.....	13.85 @ 14.25
Southern, No. 2, Soft.....	13.85 @ 13.60
Southern Gray Forge.....	12.85 @ 13.10
Southern Mottled.....	12.50 @ 12.75
Tennessee Charcoal, No. 1.....	17.50 @ 18.00
Alabama Car Wheel.....	19.50 @ 20.50
Coke Bessemer.....	15.50 @ 16.00
Hocking Valley, No. 1.....	17.00 @ 17.50
Jackson County Silver.....	17.00 @ 17.50

Bar Iron.—There is a lull in new business, but at the same time the condition of the large mills has not improved in the way of deliveries. Jobbers and other heavy buyers are still complaining of slowness of shipments. Prices are firm at 1.50¢ at Valley mills, half extras, but the small mills nearby are willing to take orders at about 1.80¢, Chicago. This does not affect the general market to any extent, as such mills do not make a wide assortment, and they are not able to make early shipments any better than the large mills. Soft Steel Bars are in some demand, with prices ranging from 1.70¢ to 1.80¢, Chicago. Prices from store are firm at 1.85¢ @ 1.95¢ for Iron and 1.90¢ @ 2¢ for Soft Steel.

Structural Iron.—The demand is quieting down, as the building season has about closed. Small lots of Beams are selling at 2.45¢ @ 2.75¢, from stock, according to the character of the order, and large lots for future delivery are held at 2.27½¢ @ 2.35, Chicago. Angles show a wide range of prices, depending on the position of the mill. Small lots are selling at 2¢ @ 2.25¢, while large lots for future delivery can be bought at 1.90¢ @ 2¢.

Plates.—An order for 600 tons of Boiler Plates was given out at Racine last week, occasioning sharp competition among the different mills represented here. Special conditions governed this transaction and the very low prices at which the order was taken is hardly a fair criterion of the condition of the general market, which is very strong for quick delivery, while early shipments are difficult to obtain. Dealers report a very heavy demand from stock, with prices unchanged. Prices on mill shipments

are now reported as follows: Tank Steel, 2.10¢ @ 2.15¢; Shell Steel, 2.17½¢ @ 2.25¢; Flange Steel, 2.30¢ @ 2.40¢. Quotations from stock are as follows: Tank Steel, 2.30¢ @ 2.50¢; Shell Steel, 2.60¢ @ 2.75¢; Flange Steel, 2.75¢ @ 3¢; Iron Sheets, Nos. 10 to 14 gauge, 2.45¢ @ 2.60¢; Steel Sheets, Nos. 10 to 14 gauge, 2.50¢ @ 2.75¢. Boiler Tubes are firm at 67½% discount.

Sheets.—The Black Sheet mills are again crowded with work, and No. 27 Common appears to be firm at about 3¢, Chicago, for mill shipment. Prices from stock are 3.10¢ @ 3.20¢ for No. 27 Common. Steel Sheets are held at an advance of 10¢ @ 15¢ over Iron. Galvanized Iron is exceedingly scarce and the large warehousemen here have not been so bare of stock for years. The standard sizes cannot be had at any price and consumers are now obliged to take other sizes as near to what they want as they can get. Prices are unchanged, which seems rather singular in view of the heavy demand. We continue to quote mill shipments at 70 and 7½% discount for Juniata, while small lots are selling at 65 and 10% @ 70% from stock.

Merchant Steel.—The small buyers are steadily purchasing from stock, making the retail trade very active, especially for Machinery and Spring Steel. Some inquiry is reported from large consumers. The demand for Tool Steel has also been quite heavy during the week, the local demand being augmented by the consumption of Drill Steel on the channel for the drainage canal. Prices are firm at 2¢ @ 2.20¢ for Open-Hearth Machinery and Spring Steel, 1.90¢ @ 2¢ for Tire Steel, and 6½¢ and upward for Tool Steel.

Billets and Rods.—The local supply of both these articles is now extremely short, as manufacturers are well sold up into the early part of next year. They quote nominally \$26 for Billets, and \$35 for Rods.

Rails and Track Supplies.—Small orders for Steel Rails continue to be the order of the day, but quite a number of transactions are reported in this way. Prices are firm at \$30 @ \$32.50, according to quantity. Fastenings are unchanged with a moderate demand.

Old Rails and Wheels.—Old Iron Rails are much firmer. Sales are reported at \$18.75 @ \$19. Some consumers whose requirements have not been covered find that the supply is decidedly limited, and they are at last compelled to acknowledge that the market has really advanced. Few transactions are reported in Old Steel Rails, with prices ranging at \$13 @ \$14.50, according to length. Old Car Wheels are firm at \$15.25 @ \$15.50, with some consumers willing to pay even more for prompt shipment. One sale is reported at \$15.75.

Scrap.—The trade of the past week was up to the expectations of dealers. Everything offered by the railroads now finds ready sale. Dealers are absorbing all the offerings, believing that they will be able to dispose of the stock thus accumulated at a satisfactory profit. Quotations unchanged, as follows: No. 1 Railroad, \$17 @ \$17.50; No. 1 Forge, \$16 @ \$16.50; No. 1 Mill, \$11; Pipes and Tubes, \$10; Horseshoes, \$16 @ \$16.50; Sheet Iron, &c., \$6; Cast Borings, \$5.75; Wrought Turnings, \$8.50; Axle Turnings, \$10; Machinery Cast, \$11.50 @ \$12; Stove Plate, \$9; Malleable Cast, \$10; Car Axles, \$18.50 @ \$19; Fish Plates, \$17.25; Mixed Steel, gross ton, \$10.50 @ \$11; Coil Steel, \$15; Leaf, \$16.50, and Tires, \$15.

Metals.—Lake Copper is firm, and 12½¢ is now asked for carloads, while 12½¢ is quoted in small lots. Western Copper is unchanged, at 11¢ carloads. Sales of Spelter have been made on basis of 4.25¢

@ 4.30¢, Chicago, for prompt shipment. The Lead market has been very quiet. Only carload lots have been sold, prices varying from 3.75¢ down to 3.72½¢. Sellers now quote 3.72½¢, but say there is very little offering.

The Congdon Brake Shoe Company, manufacturers of iron and steel castings, have removed their general offices from 1016 Monadnock Building to the works at Fifty ninth and Wallace streets, Chicago, where all communications should be addressed, and where they will be pleased to receive their many friends.

PHILADELPHIA.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., November 8, 1892

Pig Iron.—The most prominent feature seems to be that of scarcity. It is not to be understood that there is an actual scarcity, but relatively there is less Iron for sale than we have seen for a year past. There are more inquiries for prices than there are requests for bids, and in many cases when bids would be made at current quotations, they have been declined, because the Iron was not on hand, and so much was sold for forward delivery that it was not thought desirable to make further engagements. Nevertheless, what one company might not do others would be very willing to do, but all the same it is a significant fact that many leading concerns have little or no Iron to offer, and that of late refusals have come more frequently from sellers than from buyers. There is no question that the immediate condition of the Iron trade is entirely sound and healthy, and for the present at all events bids fair to continue so. Meanwhile sales have in most cases been at figures about as follows for deliveries in Philadelphia or at equivalent points, and from 25¢ to 40¢ less for Virginia and Alabama Irons delivered in Maryland and South and Central Pennsylvania:

American Scotch, No. 1x.....	\$17.00	@ \$17.50
American Scotch, No. 2x.....	16.00	@ 16.50
Standard Penna. (Lake Ore), No. 1x.....	15.25	② 15.75
Standard Penna. (Lake Ore), No. 2x.....	14.50	② 14.75
Standard Penna. (Lake Ore), No. 2 plain.....	13.50	② 13.75
Medium Quality, No. 1x.....	14.50	② 14.75
Medium Quality, No. 2x.....	14.00	② 14.25
Standard Virginia, No. 1x.....	14.75	② 15.00
Standard Virginia, No. 2x.....	14.00	② 14.50
Virginia and Southern, No. 1x. Soft.....	12.50	② 14.50
Virginia and Southern, No. 2x. Soft.....	12.75	② 13.75
Standard Penna. and Virginia Forge.....	13.25	② 13.50
Ordinary Forge.....	12.75	② 13.00

Bessemer and Low-Phosphorus Iron.—The tidal wave of improvement does not appear to have reached this vicinity or this class of Iron, and business is about as dead as at any time for a year past. Nominal prices are about \$16 at furnace for standard Bessemer and \$17.50 @ \$18 for strictly gilt-edged Low Phosphorus, but no sales are reported except in very small lots.

Steel Billets.—Market firm, but not active. Those who have been compelled to buy for November delivery have had no alternative but to pay \$27 @ \$27.50 at nearby points, and although 50¢ @ 75¢ less is quoted for later dates, consumers have not been inclined to do much business. It is recognized that there is a possibility for even higher prices than these, but buyers are not prepared to pay current quotations without seeing some way for reimbursing themselves on the product. The market has been a one sided affair for some weeks past. An adjustment is looked for before any large amount of business can be done, and, besides this, the fact that the Edgar Thomson Mill will be put on Billets after this week leads buyers to be very conservative. Probably by the time our next report is issued the market will

have assumed some definite character. Meanwhile makers are as firm as ever, but are gathering in very little business for forward delivery.

Steel Rails.—This department has been full of disappointments to those who were looking for a good demand. Deliveries for the year are not likely to exceed 1,250,000 tons, and from present indications, no great increase in the demand need be looked for during the early portion of next year, whatever there may be later on. Possibly some modification in prices may be made by that time, although in the meanwhile \$30 at mills is firmly maintained.

Bars.—The market shows somewhat more activity owing to a recent demand from car builders, but in other directions things are a little quiet. Prices are fairly steady at 1.60¢ @ 1.65¢ at interior points, and 1.70¢ @ 1.75¢ for city deliveries, but on the right kind of orders, it is not unlikely that concessions could be obtained. The outlook seems to be favorable as regards consumption, but there is not much work in hand, so that competition is close and prices likely to remain as they have been for some time past—nervous and unsettled.

Skelp—Business can be had in liberal quantities, but at extremely low prices, say something less than 1.60¢, delivered, for Grooved. Sales have been made at 1.60¢, and in some instances at a little better than that for early deliveries, but prices are not strong.

Plates.—Business during the week has been rather quieter than usual, but with a considerable amount of work in hand, mills have no difficulty in running full time. Small orders have come in quite freely, and on the whole, sales for the week are probably equal to deliveries, but no accumulation of business has been secured within the past couple of weeks. Some orders that were expected to be taken by mills in this vicinity have gone to Pittsburgh, and as further competition is expected from that source, particularly for 1893 deliveries, prices are not as firm as could be desired. General quotations for nearby deliveries are about as follows, although on large lots concessions of a half-tenth or thereabouts are not hard to secure:

	Iron.	Steel.
Tank Plates.....	1.85 @ 1.90¢	1.90 @ 2.00¢
Shell.....		2.20 @ 2.30¢
Flange.....	2.70 @ 2.90¢	2.50 @ 2.60¢
Fire Box.....	3.00 @ 4.00¢	2.70 @ 2.80¢
Special qualities.....		3.25 @ 3.75¢

Structural Material.—New business is comparatively scarce, but mills have a very large amount of work in hand, so that for the time being the absence of demand makes very little difference. At the same time the effect upon prices is unfavorable, particularly as Pittsburgh is competing for business here, and anything of moderately large proportions can be placed on somewhat better terms than during last month. General quotations remain as follows, but on several desirable orders lower figures have been accepted: Angles or Sheared Plates, 1.90¢ @ 2¢, delivered; Universal, 1.95¢ @ 2¢, and Beams, Channels or Tees, 2.20¢ @ 2.30¢.

Sheets.—Mills are closely sold up, and with a continued good demand prices are well maintained. Thin Sheets are scarcer than they have been for years, but quotations are unchanged as follows:

Best Refined, Nos. 14 to 20.....	2.75¢	@ 2.85¢
Best Refined, Nos. 21 to 24.....	2.90¢	@ 3.00¢
Best Refined, Nos. 25 to 26.....	3.15¢	@ 3.20¢
Best Refined, No. 27.....	3.30¢	@ 3.40¢
Best Refined, No. 28.....	3.40¢	@ 3.50¢

Common, ½¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ½¢ lower than are here named:

Best Soft Steel, Nos. 14 to 20.....	3¢	@ 3½¢
Best Soft Steel, Nos. 21 to 24.....	3½¢	@ 3½¢

Best Soft Steel, Nos. 25 to 26..... 3½¢ @ 3¾¢
Best Soft Steel, Nos. 27 to 28..... 3½¢ @ 4¢
Best Bloom Sheets, ½¢ extra over the above prices.
Best Bloom, Galvanized, discount.... @ 70%
Common, discount.... @ 72½%.

Old Material.—Prices are unchanged, and sales are moderately free for good qualities, but other descriptions are weak and irregular. General quotations about as follows: Old Iron Rails, \$19 @ \$20, delivered; Old Steel Rails, \$20 @ \$21; Old Steel Scrap, \$17 @ \$17.50, Philadelphia, or for deliveries at mills in the interior, \$17 @ \$18, according to distance and quality; \$11 @ \$12 for No. 2 Light; \$12 @ \$13 for best Machinery Scrap; \$12 @ \$13 for Wrought Turnings; \$8.50 for Cast Borings, and nominally \$20 @ \$22 for Old Fish Plates, and \$14 @ \$15 for Old Car Wheels.

Wrought-Iron Pipe.—The demand is not specially large, but prices are steady, and discounts ordinarily as follows, subject to the usual extras to the trade: Butt, Black, 57½%; Butt, Galvanized, 50%; Lap, Black, 67½%; Lap, Galvanized, 57½%, with the usual dealers' and jobbers' commission. Boiler Tubes, 3 inches and larger, 67½%.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, November 8, 1892

The first week of November was without any special features with the single exception that more Bessemer Pig Iron changed hands than during any one week for a long time past. Considerable activity prevails in the different lines of Iron and Steel, and the opinion prevails that the last two months of 1892 will not leave any room for complaint as far as demand is concerned, and, as we remarked last week, there are also indications of higher prices on some lines of both raw and finished material before this year is out. The advanced cost of Steel is already being felt in Wire and Cut Nails, Barb Wire, Wire Rods and Steel Pipe. Taken as a whole the situation is decidedly encouraging in every way, and is in marked contrast to the condition of affairs that prevailed but a few months since.

Pig Iron.—The event of the week was the closing up of some deals in Bessemer Pig that have been hanging fire for some time past, and the prices furnished us at which these transactions were closed lead to the belief that the advantages obtained were clearly on the side of the furnace operators. As showing how prices of Bessemer Pig have stiffened up recently, it is only necessary to state that three or four weeks ago Bessemer Pig Iron was obtainable at \$13.60 @ \$13.70, f.o.b. cars Pittsburgh, and furnace operators seemed willing to make contracts for next year's delivery at those prices, and it is reliably stated that more than one sale of Bessemer was made based on \$12.90 at furnace in Mahoning Valley or \$13.50 in Pittsburgh district. Last week sales were made involving large amounts on a basis of \$13.40 in Mahoning Valley or \$14 f.o.b. Pittsburgh, and one sale of 5000 tons is reported, based on \$14.10, f.o.b. cars, Pittsburgh. There is only one cause given for this advance in the price of Bessemer, and that is the heavy advance in Soft Steel. As to whether Bessemer Pig can be held where it is now depends nearly altogether on the future course of the Soft Steel market. Should higher prices tempt some of the idle stacks to go in again, it will also have a material effect on the market. As we noted last week, Gray Forge is also very firm, and while \$12.50, f.o.b. cars Pittsburgh, continues to be the established price, we can state that some makers have declined to renew contracts on that basis. We are advised of

the following prices for Bessemer Pig Iron:

Best Refined, Nos. 14 to 20.....	2.75¢	@ 2.85¢
Best Refined, Nos. 21 to 24.....	2.90¢	@ 3.00¢
Best Refined, Nos. 25 to 26.....	3.15¢	@ 3.20¢
Best Refined, No. 27.....	3.30¢	@ 3.40¢
Best Refined, No. 28.....	3.40¢	@ 3.50¢

Common, ½¢ less than the above.

several small sales made last week that brought \$12.75, Pittsburgh. A fair demand is going for Foundry Iron, and while prices quoted below are well maintained, there are no prospects of an early advance in prices. We quote the market as follows:

Neutral Gray Forge.....	\$12.50 @	12.75, cash.
All-Ore Mill.....	12.50 @	12.75, "
No. 1 Foundry.....	14.00 @	14.25, "
No. 2 Foundry.....	13.00 @	13.25, "
Charcoal Foundry No. 1.....	19.50 @	20.00, "
Charcoal Foundry No. 2.....	19.00 @	19.50, "
Bessemer Iron.....	13.90 @	14.00, "

We note sales of Bessemer Iron made last week aggregating some 22,500 tons for deliveries running into April of next year, at a price said to be equal to \$13.40 in Mahoning Valley or \$14 f.o.b. cars Pittsburgh. One sale involving a small part of the above tonnage was reported as having been made at a price slightly under \$14, Pittsburgh, while another involving 5000 tons was made by a Mahoning Valley furnace at \$13.50 at furnace or \$14.10, Pittsburgh. The market for Bessemer Pig Iron in Pittsburgh to day may be quoted at \$14, and very firm at that figure. Some Mahoning Valley makers are refusing to sell at less than \$13.50 at furnace for Iron for delivery next year. We can also report a number of sales of Gray Forge aggregating about 4500 tons for November and December delivery at a price equal to \$12.50, f.o.b. cars Pittsburgh.

Soft Steel Billets.—There is very little of interest to report in the Soft Steel market this week. Prices for Billets for balance of this year delivery are firmly maintained, with very little stock available. We are advised of a sale of 1000 tons for November delivery at a price equal to \$25.25, f.o.b. cars Pittsburgh. As regards the market for the first three or four months of next year, the situation is puzzling. Diligent inquiry failed to locate a single sale made during the past week for delivery next year. This would indicate that buyers have about concluded to let the market alone for a while and risk the chance of having to pay high prices when compelled to buy. On the other hand, makers seem just as indifferent in regard to taking orders for delivery next year, and are not making any attempts, so far as we can learn, to secure business for delivery after January 1. A large maker in this city states that he would consider an offer of \$24 for Billets for delivery up to April next year, but would hesitate before accepting an order at any less than the above price. It was frankly stated, however, that \$24 had not been offered and was not expected for some little time at least. We are advised that the product of Billets at the Edgar Thomson mill will not be placed on the market, but will be consumed by the Carnegie Steel Company, Limited, presumably at the Beaver Falls mills, which will probably be put in operation next week. For this reason the claim is made in some quarters that the starting up of Edgar Thomson on Billets will have very little effect on the situation. The new plant of the Shenango Valley Steel Company made its first blow last week, and started off very successfully. One concern in the Wheeling district is said to have booked several orders for January delivery, based on \$24, f.o.b. at makers' mill.

Wrought-Iron Pipe.—One of the largest makers in this vicinity advises us that the Pipe and Tube trade has not been as bright for months past as it is at the present time, nor have prospects for the future been as encouraging as they are at this time. Within the past week two orders of considerable importance have been placed with Pittsburgh makers. One of these was a contract from the Carnegie Natural Gas Company for 9 miles of 16-inch Lead-Joint Pipe, 5 miles of which are said to have been taken by the National Tube

Works Company, and 4 miles by the Pennsylvania Tube Works. The amount involved in this contract is said to be about \$115,000. In addition to this the Chambers Glass Company have placed an order 5 miles of 10-inch Pipe to be laid from the Pin Hook Natural Gas fields to the site of their new works at New Kensington, Pa. The amount involved in this contract is reported as being \$40,000. Makers advise us that the recent advance in prices is being firmly sustained, and that a very large amount of business is being placed at these prices. Discounts are as follows: Black, Butt Weld, 57 $\frac{1}{2}$ and 10%; Lap 67 $\frac{1}{2}$ and 10%; Galvanized, Butt Weld, 50 and 10%; Lap, 60 and 10%; Boiler Tubes, all sizes, 67 $\frac{1}{2}$ %; Screw and Socket Casing, 55%; Inserted Joint Casing, 50%. It is understood that to the jobbing trade additional discounts of from 2 $\frac{1}{2}$ to 5% are made.

Ferromanganese.—The receipt of one or two small lots of the foreign article in this market within the past week or two has weakened prices for domestic to some extent, which we now quote at \$62. In all probability prices will further decline on account of other shipments of foreign Ferromanganese being made to this market.

Structural Material.—The market remains in practically the same condition as noted in our report of last week. The demand continues active, with buyers insisting on prompt shipments in order to use the material before cold weather necessitates a suspension of out-door building operations. Within the last week there have been serious breaks in the ranks of the strikers at Homestead, and interesting developments relating to this struggle, now in its fifth month, may be expected any day. The output at the Homestead works is being rapidly increased, and the claim is made that the tonnage is now very nearly as large as before the troubles started. Prices remain about as given last week. We quote as follows: Beams and Channels, 2.05¢ @ 2.20¢, according to size of order and condition of delivery. Where prompt shipment is insured by the maker, slightly higher prices than these are obtained. Universal Mill Plates, Steel, continue to rule at 1.75¢ @ 1.85¢; Angles at 1.85¢ @ 2¢; Tees, 2.40¢ @ 2.50¢; Z Bars, 2¢ @ 2.05¢.

Steel Plates.—The active demand going for some weeks past continues, and the tonnage being turned out by Pittsburgh concerns at this time is larger now than at any time during this year. Some very good orders have been placed recently, and some of the mills have sold their output up to the first of the year. Much complaint continues to be heard regarding competition coming from Eastern mills, which Pittsburgh concerns are compelled to meet in order to hold their trade. Prices continue to rule as follows: Flange, 2.10¢ @ 2.35¢, according to time of delivery; Fire-Box, 3.50¢ @ 3.75¢; Tank, 1.75¢ @ 2¢; Shell, 2¢ @ 2.25¢; Bridge Plates, 2.10¢ @ 2.25¢.

Steel Rails.—A report is going the rounds in business circles here that at the meeting of the steel rail men held in New York last week it was decided to reduce the price of Rails to \$28, sometime between now and the first of the year—possibly before this month is out. While this report has not been confirmed, many in the trade believe it is reliable. As noted last week, the old rail mill at the Edgar Thomson Steel Works will go on Billets before long.

Muck Bars.—The increased strength given to Muck Bars by the advance in the price of Bessemer Steel as noted last week, has already had the effect of buyers hurrying in some orders for fear of higher prices, which otherwise would not have been placed until later in the season. The

demand for Muck Bars for the past two or three months has been in the nature of a surprise to many in the trade, as the opinion was becoming prevalent that the use of Muck Bars was fast being superseded by Soft Steel. While this of course is true to a great extent, many who have been using Soft Steel have gone back to Muck Bars whenever it was feasible to do so. No. 1 Muck Bars continue to sell readily in this market at \$24.75 @ \$25, with the first named as the ruling price. We note a sale of 2500 tons of No. 1 Bars for this and next month's delivery at the above price, f.o.b. cars Pittsburgh.

Wire Rods.—We can report quite an increase in demand with prices very firm and liable to advance in the near future. Makers of Wire Rods state that based on the present price of Steel, Rods cannot be made at \$32 and be sold at a profit. We quote the market at \$31.50 @ \$32, and note a sale of 600 tons at \$31.80, f.o.b. cars at maker's mill, for delivery this year.

Skelp Iron.—The market continues in very satisfactory condition, with no falling off in demand, and prices being firmly maintained. Makers of Skelp Iron will no doubt be considerably benefited as far as demand is concerned by the recent advance in Soft Steel, as Pipe and Tube makers will increase their orders for Skelp Iron in preference to paying the high prices now ruling for Bessemer Steel, and also from the fact that deliveries of Steel for this year can hardly be obtained. We quote Grooved Skelp Iron at 1.60¢ @ 1.65¢, and Sheared, 1.80¢ @ 1.85¢, 4 months, or 2% off for cash. We note a sale of 700 tons of Grooved at 1.62¢ and 500 tons of Sheared at 1.80¢, on the above terms.

Merchant Bars.—There does not seem to be any falling off in demand among the mills, but the large output of the past two or three months is commencing to tell in the market, and deliveries of prompt material are much easier to obtain in consequence at this time than at any period since the resumption of the mills. Much of the business now coming in is for delivery next year, and for business of this description mills are inclined to give buyers the benefit of favorable prices. We have in mind several concerns in this city whose product has a national reputation, and who at all times are able to secure not only the very best prices ruling, but also the preference in securing trade when able to handle it. Several concerns who are thus favorably situated have their order books filled up for the balance of this year, and considerable business booked for next year. We continue to quote No. 1 Bars at 1.65¢ @ 1.70¢, and Old Rail and Scrap Bars at 1.50¢ @ 1.60¢, according to time of delivery.

Sheets.—The demand for Sheets continues heavy and prices are firmly maintained. Where makers are in position to guarantee buyers prompt shipment, slightly higher prices than those named below are obtained. We quote No. 24 Sheet at 2.80¢, No. 26 at 2.90¢, No. 27 at 3¢. For less than carload lots from 5¢ to 10¢ additional on the above prices is obtained.

Barb Wire.—In all probability announcement will be made during this week of the consolidation of the interests of the Braddock Wire Company, Lambert & Bishop Wire Company, the Baker Wire Company, St. Louis Wire Mill Company and Iowa Barb Wire Company. The name of the new concern will be the Consolidated Steel & Wire Company, with headquarters in the Rookery, Chicago, Ill., and branch office in the Westinghouse Building, Pittsburgh, Pa. The business of the above concerns, while it will be consolidated under one head, will be conducted in the future very much in the same manner as in the past. Each concern will have its

own territory and look after its own trade as has been done heretofore, while additional branch offices will probably be established in other large cities. The important feature in connection with this consolidation is the fact that it will probably mean the erection of two or more blast furnaces and a Bessemer Steel plant, the location of which has not as yet been made public. The advance in Soft Steel has imparted a firmer tone to the Wire market, and buyers are sending in their orders earlier than would otherwise have been done, in the expectation that an advance in prices will take place in the near future. Makers state that in fair-sized lots they have no difficulty in obtaining \$2.10 for Painted Barb Wire and \$2.50 for Galvanized. For less than carload lots slightly higher prices are obtained.

Merchant Steel.—Trade continues about as noted last week, with a fair volume of business going. While prices do not show any material change, a specially large demand is reported for the cheaper grades of Steel. We quote as follows: Toe Calk, 2.25¢; Spring, 2.10¢; Machinery, 2¢; Plow Steel Slabs with sheared edges, 1½-inch thick and heavier, 2¢; Tool Steel we quote from 6¢ upward, according to quality.

Wire and Cut Nails.—As announced elsewhere, it is probable that the Beaver Falls mills of the Carnegie Steel Company, Limited, will be started up next week. It is understood that this concern have made large sales of Wire Nails to the Eastern trade for deliveries running into next year. We continue to report a very active demand for Wire Nails, and it has been stimulated to some extent by the advance in Soft Steel. Prices are also quite firm, and we quote the market at \$1.50 in carload lots, and \$1.55 @ \$1.60 in less quantities. In Cut Nails the situation is practically unchanged. The demand continues heavy and the Wheeling mills are reported to have all the business they can take care of for two or three months to come. Prices are firmly maintained, and we quote at \$1.50 in carload lots for 30¢ averages, and \$1.55 in less quantities.

Old Rails.—A slight scarcity in Old Iron Rails is reported, and as a result of this prices are stiffening up to some extent. There seems to be plenty of Steel Rails to go around, with only a moderate demand, and no change in prices for some time. We quote Iron Rails at \$20.50 @ \$20.75, and short length Steel Rails at \$15.50; mixed lengths, \$15.50, and long lengths, \$15.50 @ \$15.75.

Scrap Iron and Steel.—The better feeling in the Scrap trade noted in our report of last week continues, and prices in some lines have shown a material advance within the past two or three weeks. This is notably the case with No. 1 Railroad Wrought Scrap, which is bringing higher prices now than for months past, and which we quote at \$15.50 @ 16 ½ net ton. Cast Scrap we quote at \$12 @ \$12.50 ½ gross ton; Billet and Bloom Ends, \$16 @ \$16.50 ½ ton; Cast-Iron Borings, \$8 ½ gross ton; Railroad Coil Springs, \$18 @ \$18.50 ½ gross ton; Leaf Springs, \$20 @ \$20.50, net; Steel Axles, \$20 ½ net ton.

Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., under date of November 7, writes: Notwithstanding the fact that the political situation, which has hardly been freely discussed until the past week, has occupied the minds of many of our Iron users, there were some considerable transactions for consumption in our local market of Southern Iron at slightly better terms than have been heretofore made. While prices have not advanced, the question of delivery has been shortened and

the matter of purchase has not been so much in the buyers' hands as heretofore. Lake Superior Charcoal gets better and better every day. A perceptible shortage is now realized by many of the larger buyers; the market has a very much stronger tone, and some furnaces are asking from 50¢ to \$1 ½ ton advance, depending somewhat upon the numbers and time of delivery. No. 1 Iron seems to be a very scarce article, and commands fully \$1 ½ ton above the lowest quotations.

Finished material has been active, but confined largely to the shipbuilding and carbuilding industries, both of which have been very busy in this city and State. We quote the Pig Iron market as follows:

Lake Superior Charcoal, all numbers	\$16.50 @ \$17.00
Lake Superior Coke, Bessemer	16.00 @ 16.50
Lake Superior Coke Foundry, all ore	16.00 @ 17.00
Standard Ohio Blackband (40 per cent.)	16.50 @ 17.00
Southern No. 1	14.50 @ 15.00
Southern Gray Forge	12.50 @ 13.00
Jackson County (Ohio) Silverv.	17.75 @ 18.25

St. Louis.

Office of *The Iron Age*,
Bank of Commerce Building, St. LOUIS, November 7, 1892.

Pig Iron.—The market continues in the improved condition noted in our last report. Sales are not particularly heavy, and yet there is a fair amount of Iron changing hands and prices are being firmly adhered to. Gray Forge is quoted at \$9, f.o.b. cars Birmingham, and there does not seem to be any offering at less than this price, at least nothing in the way of brands which stand well with the trade. A buyer was in the market during the past week for 10,000 tons of Gray Forge on a basis of \$8.75 at furnace, but failed to place the order at that price. The market is in excellent shape, and with a steady trade a gradual advance in prices will be in order. Furnaces appear to be pretty well sold up and are asking full prices, and do not appear so anxious for business as to shade prices, even when orders which are considered desirable are offered them. The local demand is excellent, and taking all things into consideration, the outlook is decidedly encouraging. We quote as follows for cash, f.o.b. St. Louis.

Southern Coke, No. 1 Foundry	\$14.25 @ \$14.50
Southern Coke, No. 2 Foundry	13.25 @ 13.50
Southern Coke, No. 3 Foundry	12.75 @ 13.00
Gray Forge	12.25 @ 12.50
Southern Charcoal, No. 1 Foundry	15.75 @ 16.00
Southern Charcoal, No. 2 Foundry	15.50 @ 15.75
Missouri Charcoal, No. 1 Foundry	14.50 @ 14.75
Missouri Charcoal, No. 2 Foundry	14.00 @ 14.25
Ohio Softeners	16.50 @ 16.75

Bar Iron.—A steady trade is reported at unchanged prices. Mills are well supplied with orders, and state that the outlook is decidedly favorable for continued activity. Car manufacturers are busy and have been steady buyers. Jobbers report an excellent trade at 2.75¢ @ 2.80¢, according to quantity. Mills quote 2.65¢, ½ extra, f.o.b. cars East St. Louis.

Barb Wire.—A steady trade is reported by the mills, but as the season is pretty well over, a falling off in the demand is naturally looked for. Prices have advanced, and \$2.25 @ \$2.30 is now quoted for Painted for lots from mill. Galvanized is quoted at \$2.70 @ \$2.75. The cause of the advance is attributed to the improvement in Rods, which are materially higher. The outlook in this department is brighter than it has been for some time, and with a fair demand after the turn of the year still higher prices will doubtless prevail.

Wire Nails.—A remarkable feature of this department is the heavy demand at

this season of the year. Mills and jobbers report an excellent trade, and as a result prices are steady at \$1.65 from mill, and \$1.75 @ \$1.80 from store. The season is too far advanced to look for any improvement in price, but after the turn of the year with any kind of a liberal buying movement prices should advance. An error appeared in this report last week. A sale of 3000 kegs was reported which should have been 30,000 kegs.

(By Telegraph.)

Pig Lead.—There is practically nothing doing to-day on account of election, and sales yesterday were light. Prices are weaker, and a small lot was sold yesterday at 3.67½¢ for prompt shipment. Offerings at 3.70¢ are freely made, but find few buyers.

Spelter.—There is no change to report in this department. Bids of 4.15¢ are made, but sellers ask 4.20¢, and there is not much business in consequence. As stated in this report last week, stocks continue to accumulate, and there does not seem to be much chance of any early improvement in price.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, November 9, 1892.

There is a strong and confident tone to the market for Pig Iron, and though the volume of business is not large in any individual instance, the aggregate of smaller sales is of satisfactory magnitude. The furnaces are adhering firmly to their prices, and have fairly established the advance of 25¢ ½ ton generally asked a week ago for Gray Forge, and are not urgently offering Foundry Iron at current prices, although they are accepting orders running as far ahead as four months into next year, and there have been some transactions for the first half of the year. There has been a better demand from car works for Charcoal Iron with sales of fairly liberal quantities, but not of sufficient magnitude for special mention. There is manifested throughout the Iron market a sentiment of confidence to which it has long been a stranger. Even buyers realize that the prices current are comparatively low—quite as low as the furnaces can be expected to produce Iron and live—and are not adverse to paying a fair price, for it would be manifestly to their disadvantage to kill the goose that lays the golden egg. While there is little disposition for the moment to crowd prices higher, it is to be presumed that this will be done should the developments of the future seem to invite a successful issue, but the furnaces now in blast have no desire to encourage the competition of the idle furnaces. Quotations are as follows:

Foundry.

Southern Coke, No. 1	\$18.75 @ \$14.90
Southern Coke, No. 2	12.50 @ 12.75
Southern Coke, No. 3	12.00 @ 12.25
Ohio Soft Stone Coal, No. 1	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2	15.00 @ 15.50
Mahoning and Shenango Valley	16.00 @ 17.25
Hanging Rock Charcoal, No. 1	19.15 @ 19.50
Hanging Rock Charcoal, No. 2	18.00 @ 19.00
Tennessee and Alabama Charcoal, No. 1	16.50 @ 17.00
Tennessee and Alabama Charcoal, No. 2	15.50 @ 16.00

Forge.

Gray Forge	11.75 @ 12.00
Mottled Neutral Coke	11.25 @ 11.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	18.75 @ 19.00
Lake Superior Car Wheel and Malleable	17.75 @ 18.00

Cleveland.

CLEVELAND, OHIO, November 7, 1892.

Iron Ore.—Business is fairly good, a number of transactions having been reported for the past week. Non-Bessemer Hematites at \$3 @ \$3.25 are in good demand, and a number of sales have occurred. Dealers also report the sale of several thousand tons of Non-Bessemer Specular and Magnetic Ores at \$4 @ \$4.25. During the past few days the excitement over election has had a depressing effect upon the market, and no attempts have been made to crowd sales. During the week just closed 46,500 tons of new Ore were unloaded on the local docks, as compared with 29,000 tons for the same week last year. For the same week the shipments to the furnaces were 35,700 tons, as against 36,000 tons in the corresponding week in 1891. Transportation rates remain unchanged—80¢ from Escanaba, \$1.10 from Marquette and \$1.30 from Ashland and Two Harbors to lower lake ports. The navigation season may be extended to December 1, in which event the early guesses regarding the year's output will fall considerably below the mark.

Pig Iron.—The interruption incidental to election has no apparent effect upon the market. Dealers, without an exception, report an improved demand and better prices. There is a pronounced call for Iron sold in July, August and September for future delivery. In brief, everything indicates that the long anticipated revival has come at last, and moreover, that it has come to stay. Stocks have been cut down to the point where sellers are able to have a word or two to say about values. Bessemer Iron is especially strong at prices from 25¢ above last week's quotations. Charcoal Iron and Soft Silvers are also in good demand. Sales are still confined to small lots, but the demand presages a good volume of business in the near future. Quotations are given out to-day as follows:

Nos. 1 to 6 Lake Superior Charcoal @ \$17.00
Nos. 1, 2 and 3 Bessemer, per ton. 16.50 @ 14.25
No. 1 Strong Foundry, per ton.. 14.25 @ 14.50
No. 2 Strong Foundry, per ton.. 13.25 @ 13.50
No. 1 American Scotch, per ton. 14.50 @ 14.75
No. 2 American Scotch, per ton. 13.50 @ 13.75
No. 1 Soft Silver, per ton..... 14.50 @ 15.00
Mahoning and Shenango Valley
Neutral Mill Irons, per ton. 12.50 @ 13.00
Mahoning and Shenango Valley
Red Short Mills, per ton..... 13.00 @ 13.25

Old Rails.—Prices are about the same, Old Americans being plentiful at \$18.75 @ \$19.25, with a light demand.

Nails.—Dealers still quote Cut Nails at \$1.60 @ \$1.65, and Steel Wire Nails at \$1.65 @ \$1.70 in stock, with only a limited number of inquiries.

Barb Wire.—The low prices prevailing for several weeks past have given the market something of an artificial stimulus and the mills seem well engaged.

Serap.—The market is a bit more active and prices are fairly firm at \$15 @ \$15.50, for No. 1 Railroad Wrought; \$11.25 @ \$11.75 for Cast Scrap, and \$11 @ \$11.25 for Wrought Turnings.

Bar Iron.—The good demand continues and additional sales are reported at 1.60¢ @ 1.65¢, December and January delivery.

On Wednesday the 16th inst., the case of the Carnegie Steel Company, Limited, against Sylvester Critchlow on the charge of murder in connection with the Homestead riots on July 6, will be taken up by the criminal courts at Pittsburgh. This is the first of the famous Homestead cases that will be called for trial. On the Monday following, November 21, the case against John Clifford on the same charge will be brought up for trial. The other cases will also be pushed to trial immedi-

ately following the conclusion of the above two cases, and in all probability those who are charged with murder, some of whom have been confined to jail for some months, will be tried first.

NEW YORK.

Office of *The Iron Age*, 96-102 Read street, NEW YORK, November 9, 1892.

Pig Iron.—Sellers report a good run of orders, and some inquiry for next year. In some cases some of the Southern furnaces appear to have booked orders, at close price, for delivery during the whole of 1893. Exceptional terms of payment have also been offered to buyers in this section lately. There have been a number of sales of Charcoal Iron to Malleable Iron manufacturers on the basis of \$18.50 tidewater. We quote Northern brands at \$15 @ \$15.50 for No. 1; \$14 @ \$14.50 for No. 2; \$13 @ \$13.50 for Gray Forge, tidewater. Southern Iron, same delivery, \$14.75 @ \$15 for No. 1; \$13.75 @ \$14 for No. 2 and No. 1 Soft; \$13.25 @ \$13.50 for No. 2 Soft; \$12.75 @ \$13 for Gray Forge.

Ferromanganese.—The larger transactions pending last week have not yet been closed. We continue to quote 80% foreign Ferro at \$60 @ \$60.50. Spiegel is nominally \$26 @ \$27 for 20%.

Billets and Rods.—No large sales have taken place in this market, which is quiet and firm. Wire Rods are unchanged at nominally \$35.50, tidewater. We quote foreign Soft Steel Billets \$29.50 @ \$30, and Swedish Rods \$54.50 @ \$55.

Steel Rails.—Reports from other markets that a reduction in the price of Steel Rails, by the manufacturers, is imminent, are not confirmed here. Business continues very light.

Manufactured Iron and Steel.—No contracts of any magnitude are reported to have been placed in this market during the past week for either Structural Iron or Plates. We quote Beams 2.35¢ @ 2.75¢ for small lots, and 2.20¢ @ 2.50¢ for round lots, according to sizes; Angles, 1.95¢ @ 2¢; Sheared Plates, 1.85¢ @ 2.10¢; Tees, 2.30¢ @ 2.75¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.90¢ @ 2¢ for Tank; 2.20¢ @ 2.25¢ for Shell; 2.50¢ @ 2.65¢ for Flange; 2.6¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock. Refined Bars are 1.67½¢ @ 1.9¢, on dock; Common, 1.55¢ @ 1.60¢. Scrap Axles are quotable at 1.95¢ @ 2.10¢, delivered. Steel Axles, 1.95¢ @ 2.1¢, and Links and Pins, 2¢ @ 2.20¢; Steel Hoops, 1.90¢ @ 2¢, delivered.

Track Material.—We quote Spikes, 1.90¢ @ 2¢; Fish Plates, 1.60¢ @ 1.65¢; Track Bolts, square nuts, 2.40¢ @ 2.60¢, and hexagon nuts, 2.70¢ @ 2.80¢, delivered.

Old Material.—There have been some very large sales of Scrap Iron during the week at private terms, the range having been \$15 @ \$16 on cars, Jersey City. We note a sale of 1000 tons of Old Steel Rails at \$16 delivered at mill in Pennsylvania, and 500 tons Old Iron Rails at \$17.25 on cars, Jersey City. It is reported that a block of 5000 tons of Old Iron Rails is now being offered. We quote Old Steel Rails \$14.50 @ \$15, New York.

Warrant Stocks.—The American Pig Iron Storage Warrant Company report as follows:

	Tons
Stock in yard October 1, 1892.	84,000
Put in yard for 31 days ending October 31	1,500
Total	85,700
Withdrawn 31 days ending October 31,	2,500
Net stock in yard October 31, 1892	83,200

Rogers, Brown & Co. announce that they have established an office in this city at 80 Broadway, under the style of Rogers, Brown & Warner, J. McMurdie being resident agent and J. V. Umberger salesman. Among others they represent the following Pig Irons: Niagara, Tonawanda Scotch, De Bardeleben, Alice, Anniston, South Pittsburgh, Embree and Hinkle.

Metal Market.

Copper.—Dealings have been on a moderate scale during the week, with individual transactions involving more than 25,000 lb or 50,000 lb the exception. The demand has continued spiritless also and the offering tame, with no suggestion of change in the attitude of sellers. The leading producers still quote 12¢ for Lake Superior Ingots, but from other quarters more than sufficient stock to meet current demand is offered at 11¢. Electrolytic is not bringing over 11¢ at the moment, except perhaps where small quantities are involved. Casting Copper is still quoted at 10½¢ @ 10¾¢, according to brand and quantity.

Pig Tin.—Operations of speculative nature have been on a moderate scale, but the market has hardened, in sympathy with higher prices cabled from London, and considerable local inquiry for stock for delivery during the first half of next year. Offers have been made of 20.90¢ for January, February and March delivery and corresponding price for first half of the year, without leading to transactions of importance. For prompt and current month delivery, purchases by dealers and consumers have been fully up to the average and at a higher level of prices. Early in the week a few spot parcels went at 20.65¢, but 20½¢ @ 20.80¢ has since been reached for lots of 10 tons upward, while 20¾¢ @ 21¢ was paid for ordinary jobbing parcels.

Pig Lead.—Business in this line has been very slow and the market bare of new or really interesting feature. Consumers are very indifferent buyers for the time, and purchases elsewhere continue to be of strictly hand-to-mouth character. Prices are rather weak, with 3.90¢ all that sellers pretend to ask for early deliveries, and strong probabilities that 3.85¢ would be accepted for lots of 50 to 100 tons in some quarters.

Spelter.—Western brands are still quoted at 4 45¢ @ 4.50¢, but while given a certain amount of support by local dealers the market is devoid of other feature calculated to hold values firmly. Eastern consumers buy very sparingly, and the movement to other quarters, according to general report, is insufficient to offset the weight of present heavy production.

Antimony.—Prices remain about the same as they were last week, and sales are of fair volume. Current quotations are 11¢ for Hallet's, 11½¢ for LX, 11½¢ for Crown and 12¢ for Cookson's in round lots.

Tin Plates.—The recent moderate advance in prices has served to check business in futures, and at present there is not a great deal doing in that line. Spot business has been uneven and of merely fair volume for the season. Apart from slight concessions on some lines of Ternes values remain without change. We quote spot prices as follows: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., scarce; Bessemer do., \$5.45 for full weight, \$5.15 for 100 lb, \$5.05 for 95-lb, \$4.80 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60 @ \$5.65; Siemens Steel, IC basis, \$5.75; IX basis, \$6.80 @ \$6.85. IC Charcoals—Melyn grade, ½ x assortment, \$6.40; Crosses, \$8; Allaway grade, any assort-

ment, \$5.70; Crosses, \$7.10; Grange grade, any assortment, \$5.80; Crosses, \$7.20. Charcoal Ternes—Worcester, 14 x 20, \$5.70; do., 20 x 28, \$11.40; M. F., 14 x 20, \$7.87½; do., 20 x 28, \$15.75; Dean, 14 x 20, \$5.45; do., 20 x 28, \$10.80; D. R. D. grade, 14 x 20, \$5.35; do., 20 x 28, \$10.60; Alyn, 14 x 20, \$5.40; do., 20 x 28, \$10.70; Duffryn, 14 x 20, \$5.65; do., 20 x 28, scarce. Wasters—S. T. P. grade, 14 x 20, \$5.10; do., 20 x 28, \$10; Abercarne grade, 14 x 20, \$5; do., 20 x 28, \$9.80.

Coal Market.

The month just expired was the dullest October known in the Anthracite trade, and as yet the operators experience no relief. Prices outside of the combine are badly cut, but the regular schedule is maintained by all others, with the penalty of no business. Stove is said to have sold 40¢ below for limited amounts. It is need less to say that some of the faithful are becoming much dissatisfied. The Bituminous department continues active, with a prompt demand for all available supplies, and confidence is felt that there will soon be no further lack of transportation facilities. Already the Reading system is materially relieved. Production last week comprised 925,000 tons, an increase of 189,000 tons compared with the corresponding week last year, and the total since January 1 is 34,332,000 tons, an increase of 1,599,000 tons over the same time in 1891. The Reading reports 450,000 tons for the week, of which 55,000 tons were shipped to New York waters. The Pennsylvania Railroad shipped 317,000 tons of Coal and the increase for the year is 532,000 tons.

The Norfolk & Western have made a new contract with the Hocking Valley, under which about 3000 tons daily of the first-named road's celebrated Pocahontas Coal will be hauled north to Toledo and there distributed. Respecting the latest Reading deal the Pottsville *Journal* says: "As the market for the output of this region depends so largely upon the field opened up to it by the Reading Railroad system, the recent extension of that company still further to the East, while not a positive safeguard against the likelihood of overstocking the market in the future, has a tendency strongly in that direction."

Financial.

The Presidential election makes a broken week, business affairs being temporarily held in check to await results. But a speedy resumption is looked for, in full confidence that no legislation is liable to take place at the national capital that shall be inimical to the general prosperity. Trade is in unusual volume for this season of the year, and nowhere in the business horizon are there seen threatening clouds. The recent improvement in cotton looks better for the South, but cheap wheat is bad for the North. Failures in mercantile life are less frequent than a year ago. Bank clearings in the United States for ten months of 1892 equal \$49,911,760,000, or 10 per cent. more than in a like portion of 1891, but do not vary materially from the corresponding total in 1890, and are 8.2 per cent. heavier than in 1889. The October total, \$5,411,000,000, exceeds that for one year ago, but is nearly 6% smaller than in October, 1890. For the week bank clearings aggregate \$1,400,000,000, nearly 20% more than last week. The markets maintain a fair degree of stability. The anthracite market is languid, owing to the coincidence of over-production and unseasonable weather, but the trade in bituminous coal is constantly enlarging, with a widening demand.

The prices of wheat, after touching 75½ bushel, the lowest point on record, are now supposed to be mending again, the enormous pressure of grain at primary points having measurably ceased. Late advices are unfavorable both for wheat and corn. Respecting the foreign demand the record shows that since July 1 exports from all the ports amount to 70,000,000 bushels, which is only 12,000,000 less than for the corresponding period last year, when they were exceptionally large. For ten months, since January 1, wheat shipments from New York make a total of nearly 45,500,000 bushels, against about 32,500,000 bushels for the same time in 1891. Corn exports from New York are also much in excess, but petroleum shows some falling off. Fear is expressed that when the movement of corn begins it will be on the same liberal scale that has characterized wheat shipments. The flour market continues depressed, prices for standard brands being on the lowest basis known. Wool prices are also very low. Hog products are firm. Prices of cotton show a substantial gain, though the movement in spot cotton is light and it will not be surprising if the formidable strike in the British cotton mills shall affect consumption. Coffee is quiet excepting in speculative lines. In manufactured cottons there is a continued hardening of prices.

Stocks were irregular but generally strong. On Thursday the failure of the Bank of England directors to advance the rate of discount stimulated rebuying of oversold stocks; and there was an advance in Chicago Gas, Consolidated Gas, Chicago, Burlington & Quincy, Cotton Seed Oil and Cordage. On Friday and Saturday there was a further improvement in Chicago Gas, which sold at the best figures yet recorded, and there was good buying of Chicago, Burlington & Quincy.

United States bonds were quoted as follows:

U. S. 4½%, 1891, extended.....	100
U. S. 4%, 1907, registered.....	114½
U. S. 4%, 1907, coupon.....	114½
U. S. currency 6%.....	107½

In money the chief feature of the week was the advance in sterling exchange to \$4.84½ @ \$4.88. Imports of gold this year are thought to be improbable, while exports early in 1893 are not unlikely. It is possible, however, that a pressure of grain and cotton bills may impart to the market a different aspect. Time contracts for money were freely offered, and some city institutions were in the market with rates at 5% for 30 days, 5½% for 60 to 90 days and 6% for four to six months. Commercial paper was in good demand, both from the city and the interior, but the supply was less than usual at this season of the year. Rates were 5 @ 5½% for 60 to 90 days. The bank statement showed a loss of \$1,517,300 in cash and \$1,215,150 in surplus reserve, leaving this item at \$2,678,525. An advance in the rates for money at Chicago was attributed to the grain blockade. A desire for bank accommodation was quite general.

At the request of W. P. Clyde the owners and presidents of every railroad and steamship line east of the Mississippi and south of the Ohio River have been called to meet in New York on November 12. The purpose of the meeting is to talk over the rate situation in the South and to advance rates.

The results of the monetary conference soon to convene in London are the subject of conjecture. Henry Clews writes that failure on its part to relieve the silver market would operate further to degrade the metal, and possibly cause a rush among the banks for gold in order to put themselves more firmly on the single standard basis. Meanwhile the disposition is toward gold.

Imports of merchandise at this port are again larger, amounting to \$12,000,000, against \$10,321,000 for the corresponding week last year.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, November 9, 1892.

In Cleveland warrants there has been a further decline of about 6d., and more anxiety on the part of makers to sell. The productions of the district last month was 237,063 tons. Two additional furnaces are blowing in Middlesboro. Scotch warrants have undergone very little change. Bull speculators appear discouraged and bear interests keep prices down. Outsiders are holding aloof. Nothing doing in Hematite warrants. There has been a decrease of 3000 tons in the stock of Scotch and 383 tons in Cleveland Iron in Connal's stores. There are now 77 Scotch furnaces in blast.

Exports of Pig Iron last month were 92,000 tons, against 97,000 tons in October, 1891.

Pig Tin market has been quite animated at intervals during the week, and stronger with more outside interest manifested. The turn in the market is attributed to reports of increase in American consumption.

Copper has undergone very little change and the market remains rather quiet. Some undercurrent of firmness has been imparted by advices from Paris of a better feeling there, but consumers buy sparingly although their stocks are low. Inquiries from India have been suspended owing to weaker market for silver. Adverse statistics, showing smaller deliveries last month than had been expected, restrains outside buying. Furnace material is scarce.

The Grenfell Copper Works have been acquired by Merton.

The Tin-Plate market is showing better tone all around. There is more business, with the cheaper grades of Ternes selling particularly well and some large orders for Bessemer at 11/9 at Swansea for Russian account. Exports last month, 31,000 tons, against 28,000 tons in October, 1891. Quantity shipped to the United States, 19,000 tons and 12,000 tons respectively.

Scotch Pig Iron.—There has been only a moderate business, and prices remain without change:

No. 1 Coltness, f.o.b. Glasgow.....	55/
No. 1 Summerlee, " "	54/
No. 1 Gartsherrie, " "	52/
No. 1 Langloan, " "	53 6
No. 1 Carnbroe, " "	44.6
No. 1 Shotts, " at Leith	53/
No. 1 Glengarnock, " Ardrossan	49.6
No. 1 Dalmellington, " "	48/
No. 1 Eglinton, " "	47/
Steamer freights, Glasgow to New York, 1/:	
Liverpool to New York, 7/6.	

Cleveland Pig.—Demand slow and prices easier at 37/8 @ 37/8, f.o.b. shipping port, for No. 3 Middlesborough.

Bessemer Pig.—Only a moderate business passing, and prices barely steady at 48/6 for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port. Warrants improved to 7/0.

Ferromanganese.—The demand is moderate, but prices are held firmly. English 80% quoted at £11. 11/3, f.o.b. shipping port.

Steel Rails.—No improvement in the demand and prices wholly unchanged. Heavy sections quoted at £4. 2/6, f.o.b. shipping port.

Steel Billets.—A moderate business passing, chiefly at former prices. Bessemer, 2½ x 2½ inches, quoted at £4. 2/6, f.o.b. shipping point.

Steel Blooms.—The market remains very quiet and prices are unchanged. Makers quote £4 for 7 x 7, f.o.b. shipping point.

Steel Slabs.—A small business passing at former prices. Bessemer quoted at £4, f.o.b. at shipping point.

Old Iron Rails.—Demand still runs light and prices are slightly in buyers' favor. Tees quoted at £2. 12/6 and Double Heads at £2. 15/ @ £2. 16/3, f.o.b.

Scrap Iron.—Demand moderate and the small sales making are at old prices. Heavy Wrought Iron quoted at £2. 5/ @ £2. 7/6, f.o.b.

Crop Ends.—Very little doing in this line, and prices greatly nominal. Bessemer quoted at £2. 10/ @ £2. 12/6, f.o.b.

Manufactured Iron.—Moderate sized orders to a very fair volume are being placed, but the general market is slow and barely steady. We quote, f.o.b. Liverpool:

	£	s.	d.	£	s.	d.
Staff. Ordinary Marked Bars	8	5	0	8	5	0
" Common "	6	7	6	6	10	0
Staff. Blk Sheet, singles....	7	5	0	7	7	6
Welsh Bars (f.o.b. Wales)....				6	5	18 9

Tin Plate.—Prices steady on the strength of recent good business, and the demand very fair. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	12/6	@	14/
IC Bessemer Steel, Coke finish	12/	@	12/3
IC Siemens "	12/3	@	12/6
IC Coke, B. V. grade 14 x 20	12/	@	12/3
Charcoal Terne, Dean grade	11.9	@	12/

Pig Tin.—The market closes firm but quiet, with Straits quoted at £94. 17/6 for spot and £95. 2/6 @ £95. 5/ for three months' futures.

Copper.—The market steady at the close with Merchant Bars quoted at £45. 10/ spot, and £46 three months' futures. Best selected, £50.

Lead.—The market remains quiet, and prices are easy, with £10. 2/6 quoted for Soft Spanish.

Spelter.—The market slow with prices rather weak at £18. 17/6 for ordinary Silesian.

Imports.

Hardware, Machinery, &c.

Baldwin, Austin & Co., Mach'y, pgs., 5
Bing, Ferd. & Co., Hardware, cs., 14
Boker, Hermann & Co., Ironware, cs., 10; Hdw. and Cutlery, cs., 7
Downing, R. F. & Co., Hdw., pgs., 10
Erie Dispatch Co., Hdw., cs., 4
Frasse, F. A. & Co., Mdse., case, 1
Heyman & Oppenheim, Hdw., cs., 2
Hubert Bros. & Co., Arms, cs., 10
Jantit, E., Hdw., case, 1
Koscherath Bros., Hdw., pgs., 2
Kastor, Ad., Steelware, cs., 31
Lewis & Conger, Hdw., cs., 5; Mdse., cs., 11
Mosh Bros., Mach'y, pgs., 11
Pim, Forwood & Co., Buckets, pgs., 11; Hdw., pgs., 11; Galvanized Nails, cs., 6; Stoves, 60
Parry, Standford S., Hdw., cs., 3
Paul Bros., Steelware, cs., 10
Richard, C. B. & Co., Ironware, pgs., 122
Schoverline, Daly & Gales, Arms, cs., 8
Steglich & Balfe, Cutlery, cs., 2
Singer Mfg. Company, Mach'y, pgs., 28
Seward, W. B., Mach'y, cs., 3
Ward, Jas. E. & Co., Mach'y, cs., 4; Stoves, 897

Wiebusch, Hilger & Co., Arms, cs., 4; Hdw., cs., 4
Order-Mach'y, cs., 3; Cooking Pots, 130; Hdw., cs., 10; Tire Forgings, 106; Car-Wheel Tires, 60

The steamer "Tauric," White Star line, hence to Liverpool November 1, as a part of her cargo carried a shipment of 200 tons of pig iron of two grades from H. C. French, Buffalo, consigned to the Lees Malleable Casting Company, Derby, England. This trade through this one channel has aggregated approximately 5000 tons since 1887.

The great strike in the cotton industry was begun in England last Saturday, and 55,000 persons are idle. The effect on the cotton trade cannot be foreseen.

The Canadian Pacific Railway Company decline to enter into an agreement with the Government for the fast-line Atlantic steamship company between Canada and Great Britain for a longer period than ten years. In addition to an annual subsidy in the neighborhood of \$750,000, the company demand the transfer of the Intercolonial Railway from the Government to the Canadian Pacific.

Modern machinery has been introduced very generally over the Cuban states.

One of the principal steamship agents says that if 20 days' quarantine is insisted upon, the European lines will not be laden with passengers for the World's Fair.

A London cable says many families of tin-plate makers are preparing to immigrate to America, and non-union men are being driven from the country by the harsh action of trades' union leaders.

Reports from the industrial centers of Germany all point to the existence of depression in trade except in a few branches of the textile industries.

American engineers in the employ of the Japanese Government, who long ago made the first surveys of the remarkable coal beds of Yesso, in the north of Japan, estimated that they contained 150,000,000,000 tons, or about two thirds as much as the coal beds of Great Britain. This startling estimate has just been more than confirmed by official Government surveys.

The first-class battleship launched from Birkenhead on Saturday cost \$3,750,000.

An ordinance prescribing broad tired wheels for vehicles employed in heavy traffic is now in force in Philadelphia, and similar regulations are proposed in Chicago. The object is to prevent the destruction of pavements. Streets in New York are peculiarly liable to injury from heavy loads.

We learn from the Phillips Tin Plate Company, Philadelphia, Pa., that they were to start up this week two sides, one on tin and one on terne plates. As soon as these are in running order a third will be begun.

A patent has been granted to Andrew Clancy, San Diego, Cal., for an improvement in pipe connections, its object being to supply means whereby a pipe can be connected to a cylindrical or curved surface with ease and certainty of success. The claim for the pipe connection includes a pipe threaded at one end and enlarged at the other end by a rectilinear shoulder terminating in a curved flange adjacent to the shoulder; also a curved washer, having on one side a rectilinear recess and nut adapted to hold washer in position on the shoulder.

It Is Reported—

That the Hardware establishment of T. B. Gibson & Co., Woodland, Cal., was burglarized on the 23d ult., and five Revolvers and six dozen Razors besides a small amount of cash stolen.

That J. C. Moore's Hardware store at St. Johnsbury, Vt., was destroyed by fire on the 30th ult.

That Glidden & Brown have commenced the Hardware business at Marianna, Ark.

That G. Peppers has recently entered the Hardware business at Madison, Ill.

That W. H. Bartell, South Bend, Ind., is closing out his stock of Hardware, &c.

That L. C. Erbes & Co., Wapello, Iowa, have disposed of their stock of Hardware, Stoves, &c.

That Bertrand, Neb., has a new Implement house conducted by Larsons & Hurd.

That Otto Lange, York, Neb., has sold out his stock of Hardware.

That William Sherman has commenced the Hardware business at Manchester, N. Y.

That at Sharon, Pa., the Enterprise Hardware Company have recently commenced business.

That Murphy & Bain have entered the Hardware business at Trenton, Mo.

That Marvin Finton & Son are successors to David Wright in the Hardware business at Maquoketa, Iowa.

That M. M. Tullis has sold his interest in the Hardware firm of Tullis & Edgerton, Edmond, Okla., to H. J. Shaver.

That J. W. Kurtz will soon open a new Hardware store at Hammond, Ind.

That George E. Sanders has purchased the Hardware store of W. L. Pierce, East Calais, Vt.

That J. T. Bouton's Hardware store at Monroe, N. Y., was destroyed by fire on the 2d inst.

That the Hardware store of Brice & Kimball, Corinth, N. Y., was robbed on the 1st inst.

That B. A. Breakey, Los Angeles, Cal., has been succeeded in the Hardware business by W. W. Douglas.

That List & Schuler have commenced the Hardware business at Le Roy, Ill.

That the Agricultural Implement business of Davidson & Eckerman at Sibley, Iowa, has been sold out to Eckerman Bros.

That Richardson & Bro. are a new Hardware firm at Pokomoke City, Md.

That Greenfield, Mass., has a new Hardware store, conducted by George W. Pecan.

That T. A. Ferguson, Hardwareman, Lyons, Neb., has disposed of his business.

That the stock of the Independence Hardware Company, Independence, Mo., has been purchased by J. J. Stogdale of Liberty, who has placed John Patton in charge of it.

That F. H. Webster has removed his stock of Hardware and Stoves from Salmon Falls, N. H., to Happy Valley.

That Bryant & Lander have opened a Hardware store at Rumford Falls, Maine.

That George Paddock at Homer, N. Y., has sold out his Hardware business to F. E. Williams.

That W. H. McGinnis has purchased the Hardware store of his father at Powhatan, Kan., and will continue at the old stand.

HARDWARE.

Condition of Trade.

WHILE THE VOLUME of business on general lines is moderate, there is an active demand for seasonable goods which is stimulated by the approach of cold weather, and in some staple goods there has been considerable business done, as parties are placing orders for their future requirements. Manufacturers are, however, still well occupied on orders taken earlier in the season, and find some difficulty in turning out the goods as rapidly as they are called for by their customers. There is little to note in regard to prices, which continue on substantially the same level as for some time past. The special features of the market in leading staple goods are referred to below. Collections generally are reported as fair and there is certainly little ground for complaint.

Chicago.

(By Telegraph.)

We have to report another week of good business in both Shelf and Heavy Hardware. The Shelf Hardware trade continues to run more to straight Hardware and seasonable goods than to staple articles. Seldom has there been a stronger demand for Builders' Hardware than during the season just closing. Houses making a specialty of builders' supplies have had more trade than they could well handle, and complaints are heard on every side of slow shipments from the manufacturers of Locks and other trimmings. House Furnishing Goods, Tinware, &c., are in excellent demand. Cold weather now prevails all over the Northwest and it is expected to greatly stimulate the trade in winter commodities, for which a taste of frigidity is always needed to make business really lively. Prices are very steady, with some inclination to advance on staple articles. Heavy Hardware keeps up to the expectations of the jobbers, but they are somewhat hampered by the backwardness of the mills in filling orders for Iron and Steel.

St. Louis.

(By Telegraph.)

A fall in the temperature of about 15° in the last few days has stimulated buying of cold weather goods. Shelf Hardware is in good demand and Heavy Hardware is moving in good volume. Wire Nails are selling in large quantities and prices are firmer. Barb Wire has advanced and Plain Wire is going the same way; in fact, prices of all lines are firm and with a continuance of the present demand a general hardening of prices is anticipated. Cutlery, Skates, Builders' Hardware are all in good demand. Collections are good.

Notes on Prices.

Cut Nails.—During the past week or two the demand for Nails has been very satisfactory, and a large amount of business has been done. There is thus no reason for complaint so far as the aggregate of sales is concerned. Prices continue, however, low and unsatisfactory, and notwithstanding the excellent demand the market shows signs of further weakness. There is some unevenness in the quotations of the different manufacturers, but \$1.35, f.o.b. mill, on a 35-cent average is understood to have been obtained on some large orders, and it is intimated that even this figure has been shaded. It has not been found feasible by the Eastern manufacturers to continue the understanding in regard to prices, and while it may be followed in a few cases the market is to be regarded as an open one, manufacturers being free to sell at any figures they choose. This fact, with the spirit of active competition which prevails, results in the exceedingly low prices which are ruling. The large amount of business which is doing is induced in good measure by the conviction on the part of the trade that there will probably be a reaction from current quotations, and that higher figures will sooner or later prevail. There is thus something of a speculative spirit perceptible in the market.

Chicago, by Telegraph.—The even tenor of the market in Steel Cut Nails has been disturbed by offers at low prices from the smaller factories. This is a periodical occurrence, however, and as the supply from such sources is not to be depended on, the large manufacturers have not reduced their prices to the same level, but continue to quote \$1.62½ to \$1.65 on 30-cent average, and report a steady influx of orders. Jobbers quote small lots \$1.65 to \$1.70 from stock.

Wire Nails.—The demand for Wire Nails continues excellent and most of the mills are well supplied with orders. Prices continue as at our last report, \$1.45, f.o.b. mill, being the market price for round lots. Notwithstanding the advance in raw material the market as yet exhibits no increased strength, except as manufacturers are unwilling to accept large contracts for future delivery at the lowest prices now current.

Chicago, by Telegraph.—As far as can be ascertained all the Wire Nail factories are very busy, and will be for at least the remainder of this month. Prospects are also very good for the future. Merchants are buying liberally, and large inquiries are in the market for future shipments. Few manufacturers are willing to make contracts for delivery beyond January 1, as they wish to see first what course raw material is likely to take. The advance in Billets and Rods has stiffened

prices, and \$1.65, Chicago, appears to be bottom for largest lots. Jobbers quote small lots from stock \$1.75.

Barb Wire.—The trade in Barb Wire is exceptionally active for this season, but the extent of the demand and the condition of the raw material market does not result in higher prices. The quotation for carload lots at mill is \$2.40 to \$2.45 for Four-Point Galvanized, but these figures have been shaded. New York prices are on a basis of \$3.10 for small lots, with 10 cents off in carloads.

Chicago, by Telegraph.—The meeting of manufacturers held here last Wednesday endeavored to advance Barb Wire to \$2.25 for carload lots Painted and \$2.70 Galvanized, but it remains to be seen whether the advance will be maintained. No special agreement was made and no risks are run by those who cut the price. It is asserted that sales are still being made by some manufacturers at the old rates of \$2.15 and \$2.60 for carloads, with concessions on large lots. Orders are being entered quite freely for spring delivery, but here and there can be found large buyers who are disposed to take their chances on the future and will not purchase until they see that they will need the Wire. The advance in Billets and Rods has influenced consumers of plain Wire to cover their requirements, and we hear of important transactions within the past week at better prices than have hitherto prevailed. Jobbers quote Painted Barb Wire \$2.35 and Galvanized \$2.80 in small lots from stock.

Cordage.—The Cordage market is without important change, the nominal quotations being freely shaded by parties both inside and outside the National Cordage Company. Manila Rope, in carload lots, can be purchased at 10 cents base, f.o.b. New York or factory. Ordinary retail lots of Manila are sold at 10½ to 11½ cents. Manufacturers independent of the National Cordage Company are obviously occupying a more important position in the market, and the control of the National Cordage Company is not as complete as they had hoped to make it.

Screw Drivers.—Among the new goods described in this issue are the Gem and Beauty Screw Drivers manufactured by the C. T. Williamson Wire Novelty Company, Newark, N. J. The following are the list prices of these goods, which are subject to a discount of 50 per cent.: Gem Screw Drivers, No. 11, nickel plated, per dozen, 90 cents; Beauty Screw Drivers, No. 15, nickel plated, per dozen, \$1.

Glass.—The Glass market for the past week has remained unchanged, demand continuing fair at factories, and a satisfactory business reported by local dealers. A meeting of Glass manufacturers was held on November 3, and the prices

adopted at the Cleveland meeting to go into effect November 1, were reaffirmed. This action on the part of the manufacturers would indicate that they considered the improvement in demand justified the advance in price. Demand for imported Glass continues fair, and prices firm at 80 per cent. discount to 80 and 5 per cent. discount, the latter price being given in exceptional cases. The local Plate Glass market shows no improvement, prices being weak and unsettled. Quotations are on the following basis: American Window Glass, 1000-box lots or more, 80 and 15 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount. French Window Glass, 80 per cent. discount. American Plate ranges in price from 50 and 10 and 7½ per cent. discount to 60 and 5 per cent. discount. Imported Plate Glass 60 per cent. discount to 60 and 10 and 5 per cent. discount.

Export Notes.

WHILE PURCHASING Wire Nails for the Brazilian market, recently, the transaction being between two very prominent concerns, the representative of the producers said he believed his company were in a position to supply that section with bar and other iron at remunerative rates, in competition with the foreign product, and asked the privilege of furnishing samples to be sent out for comparison, which offer was promptly accepted. This same thing has already been done by other large concerns in connection with West Coast South American countries. Wire Nails are now going to Brazil in satisfactory quantities, in successful competition with foreign brands.

In Venezuela General Crespo, who is master of the situation there, has approved of the presence of Rojas Paul in Caracas, formerly president of that country. While Crespo would in all probability not refuse a mandatory call to the presidency by the people, untrammelled in their choice, it is thought he believes he would be accused of seeking the place through a revolution. As near as can be judged his policy will be to allow Congress to come together as the representatives of the people, and allow the people freedom in their selection, which seems likely to result in Rojas Paul being chosen. There are yet two or three generals of minor importance who will have to be either bought or conquered.

Commerce in South Africa improves gradually and surely, some good orders for Building Materials, Hardware, and miscellaneous produce having been received here recently.

The strike at Broken Hill, New South Wales, the great silver mining district, has virtually collapsed after three months' struggle—a large force of non-union miners having been obtained.

Melbourne custom-house receipts are showing a falling off of trade, for in spite

of very much increased duties the returns are more than 25 per cent. less than for the same period last year.

Advices from Melbourne are to the effect that from the commencement of the financial crisis there have been 67 compositions with creditors in Melbourne, making total liabilities of about \$24,000,000. One of the largest operators has settled at a halfpenny in the pound, or 1 cent on \$5!

An attempt by the free-trade party to overthrow the semi-protective Government of New South Wales, where Sir George Dibbs is Premier, lost on September 30 by only four votes. It is realized that protection is very expensive for so small a population.

The report is cabled from Rio de Janeiro that Señor Serzedello, Minister of Finance, who resigned his portfolio in consequence of the action of the Chamber of Deputies in rejecting the Government bill taking over bank issues, and adopting a bill giving the exclusive right of issue to the Banco do Republica, has reconsidered the matter and withdrawn his resignation. It is expected that the Senate will reject the Banco do Republica bill passed by the Chamber of Deputies.

The statement is made that Brazil has decided to enter into a commercial treaty with Chili by which Brazilian coffee and sugar are to be admitted free into Chili in exchange for the free entry of Chilian flour and wines.

The Bureau of American Republics at Washington has been informed that Guatemala has granted a 70 year concession for the construction and operation of a railroad from Ocos, a seaport on the Pacific, to Santa Catalina inland, with a branch connecting the Santa Clara estate with El Noranjo, in the department of San Marcos. The grantees are to have the exclusive right of way in the territory through which the road will run, will receive a strip of land on each side of the track equal to 131 feet, and the Government agrees to issue bonds at the rate of \$10,000 per mile of railroad constructed, bearing 6 per cent. interest.

The Toledo Bicycle Co.

THE TOLEDO BICYCLE COMPANY, Toledo, Ohio, have recently increased their capital stock \$100,000, and announce that they propose to put on the market for next year strictly high-grade machines, and as good in quality as it is possible to make. These will consist of a class of machines that is adapted for expert riders in 24-pound racers, 33 pound scorcher and 38-pound road wheels; also a handsome and attractive ladies' wheel. The machines, we are advised, are built on the most improved lines and correct principles, and it is the purpose of the company to solicit especially the trade of the Hardware dealers throughout the country. The company are of the opinion that the Bicycle trade will eventually be controlled

by the Hardware dealers, and every effort will be made to secure Hardwaremen as agents, as being better equipped for handling the business than any other class of dealers.

Cut Nails

VERSUS

Wire Nails.

IN VIEW of the animated contest which has been going on for several years between Cut and Wire Nails for the possession of the market, the announcement given below will be of general interest to the trade. It will be seen that leading manufacturers of Cut Nails propose a test at the United States Arsenal, Watertown, Mass., of the relative qualities of Wire and Cut Nails, in which the manufacturers of both kinds are to be represented. The invitation or challenge bears date November 4, and is in the following terms:

In view of conflicting claims made concerning the comparative merits of Cut Nails and Wire Nails, the undersigned, manufacturers of Cut Nails, respectfully invite you to be present at, and to take part in, a series of tests, to be made at the United States Arsenal, Watertown, Mass., upon the Governmental testing machine, under the supervision and control of the commanding officer of the arsenal.

The tests will commence on Wednesday, the 30th day of November, 1892, at 12 o'clock, m.

The object of the tests is to ascertain the comparative holding powers of Cut Nails and Wire Nails, of equal lengths and weights, when driven, as in actual use, into the common building material of country, say spruce wood.

It is proposed to conduct the tests by pulling ten Cut Nails of given length and weight, and then pulling ten Wire Nails of the same length and weight; thus testing the Nails in pairs until the list is exhausted.

In order to include the Nails that are in common use, sizes of Cut Nails have been selected for testing as shown in the following list, which also gives the closely approximate number of Nails contained in a pound of each size.

1½ inch Nails	3d. fine	764
1¼ " "	3d.	425
1½ " "	4d.	332
2 " "	6d.	154
2½ " "	8d.	95
3 " "	10d.	69
4 " "	20d.	33
5 " "	40d.	17
6 " "	60d.	12
1½ " "	3d. fine L	1018
1¼ " "	3d. box,	521
1½ " "	4d. "	462
2 " "	6d. "	200
2½ " "	8d. "	123
3 " "	10d. "	80
4 " "	20d. "	41
5 " "	40d. L	24
6 " "	60d. L	17
1¾ " "	3d. fine XL	1438
1½ " "	3d. FF	1200
1¾ " "	4d. "	748

2 inch Nails.....	6d. FF,	265
2½ " "	8d. " 157	
3 " "	10d. " 132	
4 " "	20d. " 51	
5 " "	40d. XL, 29	
6 " "	60d. " 21	
1½ " "	3d. FFF, 1716	
1½ " "	4d. " 996	
2 " "	6d. FF, 436	
2½ " "	8d. FFF, 214	
3 " "	10d. " 172	
4 " "	20d. FF, 60	
5 " "	5 inch Spikes, 10	
6 " "	6 " " 6	
2 " "	6d. XFF, 565	
2½ " "	8d. " 350	
3 " "	10d. " 230	

We have selected from the stocks of Bright Wire Nails in the market sizes which correspond in length and closely approximate in weight to the Cut Nails named above, and we have also selected representative Barbed Wire Nails in sufficient numbers to ascertain their comparative merits.

We invite you to inspect these selected Wire and Barbed Wire Nails, and if any are, for any reason, objectionable, to substitute others of the same dimensions for them.

We trust that you will unite with us in so arranging or altering the conditions of these tests that they may be recognized as absolutely fair and authoritative in determining, beyond argument or cavil, the relative holding power of Cut and Wire Nails of equal lengths and weights.

We invite your correspondence, which may be addressed to any one of our Committee of Arrangements: Charles L. Bailey of Harrisburg, Pa.; Arthur B. Clarke of Richmond, Va., and Horace P. Tobey of West Wareham, Mass.

Yours respectfully,

E. & G. BROOKE IRON COMPANY,
ELLIS & LESSIG STEEL & IRON COMPANY, LIMITED,
POTTSWELL IRON COMPANY,
CHESAPEAKE NAIL WORKS,
DUNCANNON IRON COMPANY,
NORTHUMBERLAND IRON & NAIL WORKS,
OLD DOMINION IRON & NAIL WORKS,
OXFORD IRON & NAIL COMPANY,
CUMBERLAND NAIL & IRON COMPANY,
MT. HOPE IRON COMPANY,
WILLIAMSPORT IRON & NAIL WORKS,
TREMONT NAIL COMPANY.

The above circular has been sent to the following manufacturers of Wire Nails:

BROOKLYN WIRE NAIL CO., Brooklyn, N. Y.
BEAVER FALLS MILLS, Pittsburgh, Pa.
BRADDOCK WIRE CO., Pittsburgh, Pa.
NEWCASTLE WIRE NAIL CO., Newcastle, Pa.
OLIVER & ROBERTS WIRE CO., Pittsburgh, Pa.
PHILLIPS, TOWNSEND & CO., North Penn. Junction, Pa.
BAACKES WIRE NAIL CO., Cleveland, Ohio.
HP NAIL CO., Cleveland, Ohio.
SALEM WIRE NAIL CO., Salem, Ohio.
UNITED STATES STEEL CO., Jackson, Ohio.

AMERICAN WIRE NAIL CO., Anderson, Ind.
HAZEN CO., Cincinnati, Ohio.
LAMBERT & BISHOP WIRE FENCE CO., Joliet, Ill.
ST. LOUIS WIRE MILL CO., St. Louis, Mo.
PUGET SOUND WIRE NAIL & STEEL CO., Everett, Wash.
CALIFORNIA WIRE WORKS, San Francisco, Cal.
ATLAS TACK CORPORATION, Boston, Mass.
AMERICAN SCREW CO., Providence, R. I.
And all other manufacturers of Wire Nails in the United States.

It is to be hoped that the proposed tests will be such as to determine fairly the relative qualities of the Nails in question, so that the respective merits of the Nails for different uses may be definitely ascertained. The result of the tests will be awaited with interest.

C. E. Jennings & Co.'s New Catalogue.

C. E. JENNINGS & CO., 79 Reade and C. 97 Chambers streets, New York, with factories at Yalesville, Conn., Hinsdale, N. H., and Port Jervis, N. Y., have just issued a complete catalogue of their Mechanics' Tools and Hardware specialties. It is about 8½ x 11½ inches in size, containing 184 pages, bound in stiff covers. In choosing a cover for their catalogue something was selected representing a piece of bird's eye maple, which was found later to be out of the market. They were compelled to take to the woods, so to speak, so they acted upon the suggestion of their printers, to take a piece of natural wood as a wood cut, and make an electro-type from that. This was done with very pleasing and satisfactory results. The paper comprising the catalogue is of excellent quality, while cuts and prices are allowed sufficient space to make the arrangement desirable. A comprehensive alphabetical index is at the front of the book, giving ready reference to desired articles. Numbers and sizes of goods are in bold-faced type so as to be readily distinguished from, and not confused with, the prices, and also as an aid in finding the number or size quickly. Much time and labor have been spent on the arrangement of the catalogue, and the work will be duly appreciated by the trade.

Fire at Plumb's Edge-Tool Works.

THE EDGE-TOOL WORKS of Fayette R. Plumb, at Frankford, Philadelphia, were the scene of a disastrous fire which occurred on the night of Saturday, the 5th inst., the conflagration resulting, it is believed, from a red hot electric-light wire coming in contact with the wood work of the building, as no fire of any kind was used in the department where the blaze originated. Fortunately the destruction was confined to the building where finished goods were stored, the manufacturing department remaining unin-

jured. Work was resumed without interruption on Monday, and the factory is now running full as usual. The damaged warehouse is a building of two stories, 100 x 40 feet, containing a large stock of finished goods, including an order for \$16,000 worth of tools, which were ready packed for shipment to California. All the articles were much damaged by water, and will have to be reworked almost entirely. The damage is estimated at \$65,000 or \$70,000, which is, however, fully covered by insurance. Mr. Plumb states that if an adjustment is promptly arrived at with the insurance companies a double force of workmen will be put on immediately, and he anticipates but little delay in working up a sufficiency of stock to meet all orders received.

Mr. Plumb has issued the following circular letter to his customers:

A disastrous fire occurred at my works on the night of the 5th inst.; it was confined to the warehouse, greatly damaging the finished stock. I am glad to be able to report, however, that the manufacturing department was not injured, and I have resumed operations this morning with my full complement of employees. I am, therefore, confident I can take care of all orders intrusted to me, and solicit your valued favors, which will receive careful attention.

The Sale of Wire Nails.

THE COMPETITION between the Wire and the Cut Nail manufacturers continues active, and it would appear that Wire Nails are still making inroads upon the Cut. At one time there appeared to be a slight reaction against the Wire Nails, but it was apparently only temporary and confined to certain sections of the country. While for certain uses the Cut Nails are still preferred Wire Nails are meeting with very general favor and coming into increased use, especially in view of the low prices now ruling. This condition of things is referred to in a circular recently issued by the McIntosh-Huntington Company, Cleveland, from which we make the following extract:

About seven years since a Wire Nail company in Cleveland commenced making what they called Standard Wire Nails to compete with Cut Nails, and in order to have the trade try them, made price so that 100 Wire Nails would not cost any more than 100 Cut Nails.

This induced nearly every one to order a sample keg, and in some cases two to five kegs. These, of course, were put in the hands of consumers, and resulted in their being gradually used instead of Cut Nails. Continued use of the Wire Nails met with favor, and within two years our sales were about equally divided between Cut and Wire Nails.

Up to that time Cleveland had about the only manufacturer of Standard Wire Nails, but soon they commenced to spring up in all directions. Prices gradually got closer and closer to the prices of Cut Nails, until to-day we are pleased to quote you:

Wire Nails from mills.....	\$1.55 rates.
" " stock.....	1.60 "
Cut Nails " mills.....	1.60 "
" " stock.....	1.70 "

And when you stop to figure that there are a great many more Wire than Cut Nails to the pound, you will notice the

former are about 25 per cent. cheaper than the latter, and, being so much nicer and better to use, why carry two stocks?

Trade Items.

THE AMERICAN AXE & TOOL COMPANY'S factory at Beaver Falls, Pa., was partially destroyed by fire, which broke out about 5.30 p.m., November 3. The supposition is that a gas jet burning too close to the wall of the paint room caused it. The polishing and finishing departments and about one-half each of the grinding and forging shop were burned. The management expect to be operating the remainder of the works double time within a week, turning out the usual product of 200 dozen Axes per day. The adjusters are now at work determining the loss.

HARRY C. DISSTON, son of Samuel Disston, Philadelphia, who has been absent for the past nine months on a tour around the world in the interests of the firm, is expected home by Thanksgiving Day.

THE AMERICAN AXE AND TOOL COMPANY are rebuilding the grinding and finishing departments of the Blood's Axe factory at Ballston Spa, N. Y., recently destroyed by fire, and expect to be in full working order early in December.

MILLER LOCK COMPANY are about to make an addition to their factory at Frankford, Philadelphia, which will increase their manufacturing capacity one-fourth. The company report a larger increase of business this season than has ever before been experienced in the history of the firm. This has compelled them to undertake the present extension, which will be proceeded with forthwith in order to enable them to fill all orders promptly.

THE VARIETY MFG. COMPANY, now located at 315 to 319 South Desplaines street, Chicago, have arranged to remove their plant to Chicago Heights, a new manufacturing suburb. They will occupy a two-story brick building, 60 x 200 feet, with a brick wing 40 x 80 feet. The company manufacture fans, ventilators and Hardware specialties. The well-known Chicago Hardware merchants, Bliss, Bullard & Gormley are interested largely in the corporation with E. G. Barrat of the Exhaust Ventilator Company. The new location will be directly on the line of the Elgin, Joliet & Eastern Railway, or outer belt line of the Chicago system.

C. E. WOODRUFF, 235 Lake street, Chicago, has been appointed sales agent for the Rex Lawn Mower, manufactured by W. E. Lape, Syracuse, N. Y. Mr. Woodruff's territory will cover Chicago and the West, extending to the Pacific Coast, north to Manitoba, &c. He will carry a stock of the Mowers, enabling him to promptly fill orders.

TRAVERS BROTHERS, 107 Duane street, are introducing an innovation in putting up Rope which will be appreciated by the retail Hardware trade. They are using untarred laid Sisal Rope as bands for holding coils of Rope together, instead of heavily tarred refuse fiber, which is the material usually used for this purpose. The above firm are now making a full line of Cordage and Rope.

THE GENDRON IRON WHEEL COMPANY, Toledo, Ohio, being pressed for room in their present factory are erecting a seven-story building 50 x 100 feet in size, which is expected to be ready for business by January 1, 1893. This company commenced business a few years ago at making Baby Carriges, Express Wagons, &c. A large building was erected, and it was not long before it was all in use and the firm were cramped for room. The two additional

stories were built to the south part of the building only last year, and already have been outgrown and the demand for more space been made.

THE NATIONAL WRINGER COMPANY, Canton, Ohio, have recently purchased ground for the erection of buildings suitable for their growing business. The main building will be three stories in height, 125 x 42 feet in size. It will be constructed of brick and frame. A boiler and engine room, one story in height, 50 x 30 feet in size, will be constructed of iron and will adjoin the main building. A rubber factory, 100 x 40 feet will be erected soon after the other buildings are completed. Work on this structure will begin in December. Since organization the company have been doing business on the second floor of the Malleable Iron Works building, temporarily, awaiting the erection of suitable buildings of their own, and in their present hampered quarters are putting out 400 Wringers a day. It is expected that their new buildings will be completed before the first of the year, when the output will be more than doubled. The officers of the company are as follows: J. H. Werner, president; Joseph Schott, secretary and treasurer, and J. N. McNeill, superintendent.

H. F. NEUMAYER, Macungie, Pa., has sold out his stock of Hardware to Aaron Weinberger. Mr. Neumayer will continue the sale of Red Jacket Pumps, Pipes, Rams, Fittings, &c.

The Warrant on Pocket Cutlery.

THERE IS SOME DIVERSITY in the practice of different manufacturers in regard to warranting Pocket Cutlery, and there are indications of a disposition on their part to withdraw the comprehensive warrant which some of them have been giving on account of the manner in which it is sometimes abused. A circular has recently been issued by Humason & Beckley Mfg. Company, New Britain, Conn., and 80 Chambers street, New York, relating to this subject. The warrant which they are in the habit of giving is in the following terms:

We will replace, without charge, all Knives made by us that are actually imperfect, and but little used. Worn-out Knives, and Knives damaged by hard use will not be replaced.

Referring to this warrant they explain the interpretation which they will give to it in the following terms:

We beg to call your attention to our "warrant" on Pocket Cutlery, as explained above, a copy of which is enclosed in every box of Knives sent out from our factory.

The terms of this warrant will be strictly adhered to and our Cutlery sold upon this basis.

THIS WARRANT MEANS:

That Knives with more than one broken blade will not be replaced.

That Knives spoiled by grinding or otherwise badly used will not be replaced.

That Knives carried several months will not be replaced.

That Knives worn out will not be replaced.

That all Knives returned to us as poor, whether direct from the purchaser or through our salesmen, will be subject to our inspection, and will be replaced only "when actually imperfect and but little used."

Exports.

THE FOLLOWING are the exports of Hardware, Metals, Machinery and Related Goods from the port of New York for the week ending October 25, 1892. It will be observed that they are misleading in regard to Canada and Mexico, as most of the goods for Canada and a considerable proportion of those for Mexico are shipped by rail:

	Quantity.	Value.
Machinery, packages.	6	\$520
Iron Drums.	15	225
Electric Material, cases.	12	1,893
Manufactured Iron, packages.	155	1,331

ARGENTINE REPUBLIC.

Hardware, packages.	75	1,586
Straps, bundles.	5	52
Tin Foil, case.	1	36
Nails, kegs.	14	28
Saws, case.	1	40
Nails, cases.	15	26
Washers, packages.	8	170
Scales, cases.	12	135
Agricultural Implements, pkgs.	1,858	18,883
Lamp Goods, packages.	91	649
Cutlery, cases.	6	87
Carriage Material, packages.	4	190
Manufactured Iron, package.	1	41

AMSTERDAM.

Hardware, cases.	16	194
Ice-Cream Freezers, cases.	2	50

AVIGNON.

Agricultural Implements, pkgs.	8	105
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BRITISH EAST INDIES.

Clocks, packages.	23	730
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BRITISH GUIANA.

Hardware, cases.	83	331
Clocks, case.	1	21
Sewing Machine, case.	1	12
Carriage.	1	140
Cutlery, cases.	4	56
Lamp Goods, package.	1	10

BRAILA.

Machinery, package.	1	150
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BILBOA.

Electric Materials, cases.	6	1,083
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BREMEN.

Machinery, packages.	5	1,209
Hardware, cases.	14	388
Agricultural Implements, pkgs.	3	210
I. R. Goods, cases.	4	640

BERLIN.

Carriage Registers, cases.	3	300
Typewriters, packages.	26	971

BRITISH POSSESSIONS IN AFRICA.

Machinery, packages.	162	8,901
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BRITISH AUSTRALIA.

Hardware, packages.	781	10,228
Manufactured Iron, packages.	386	3,064
Velocipedes, cases.	2	120
Clocks, cases.	134	2,667
Sewing Machines, cases.	111	2,238
Cartridges, cases.	287	3,899
Hose, packages.	10	705
Nails, boxes.	26	114
Wheels and Axles, cases.	40	1,042
Wind-Mill Parts, packages.	26	1,075
Pumps, packages.	21	1,530
Fire Arms, cases.	26	2,247
Grindstone Fixtures, cases.	29	65
Sinks, cases.	2	19
G Primers, cases.	4	406
Scales, cases.	57	655
Carriage Material, packages.	352	6,709
Agricultural Implements, pkgs.	50	1,137
Lamp Goods, packages.	197	2,284
Granite Ware, packages.	4	200
Perambulators, cases.	55	1,783
Agate Ware, cases.	3	62
Percussion Caps, cases.	2	60
Trucks, case.	1	10
Wringers, cases.	58	720
Loaded Shells, cases.	71	504
Straps, case.	1	11
Saws, cases.	7	231
Machinery, packages.	14	2,285
Plated Ware, cases.	8	407
Oilstones, cases.	2	30
Cartridge Shells, cases.	4	86
Shears, case.	1	98

BOLIVIA.

Hardware, packages.	2	19
Cutlery, cases.	6	76

MEXICO.	
Hardware, packages.	174
Lamp Goods, packages.	37
Scales, cases.	54
Brass Goods, cases.	5
I. R. Goods, cases.	13
Machinery, packages.	438
Cartridge Shells, cases.	7
Carriages.	3
Cartridges, cases.	42
Sewing Machines, cases.	103
Pumps, packages.	9
Iron, bundles.	95
Iron Tanks.	5
R. R. Material, packages.	6
Powder, pounds.	892
Cuspidores, case.	1
Babbitt Metal, cases.	2
Sewing-Machine Needles, case.	1
Tacks, case.	1
Velocipedes, cases.	5
Manufactured Iron, packages.	2,083
Solder, case.	1
Iron Safes.	2
Clocks, cases.	8
Washers, box.	1
Bells.	6
Electric Material, packages.	122
Cutlery, cases.	79
Percussion Caps, cases.	7
Firearms, cases.	13
Bicycles, cases.	2
Bullets, cases.	2
Wire Cloth, boxes.	25
Agricultural Implements, pkgs.	12
Axes, box.	1
Nails, packages.	15
Tinware, cases.	9
Manufactured Coppered, case.	1
Manufactured Steel, packages.	8
Sheet Lead, cases.	2
Nails, kegs.	180
Tin Plates, cases.	25
Shot, boxes.	2
Grindstones.	326
Saws, cases.	2
NAPLES.	
Machinery, packages.	4
NEW ZEALAND.	
Granite Ware, case.	1
Hardware, cases.	5
Firearms, case.	1
E. P. Ware, case.	1
NEW BRUNSWICK.	
Coal tons.	2,451
Old Rails, tons.	266
NOVA SCOTIA.	
Coal, tons.	60
OLTEN.	
Sandpaper, cases.	3
PORTO RICO.	
Lamp Goods, packages.	14
Twine, bale.	1
Carriage Material, packages.	7
Bicycles, crates.	2
Valves, cask.	1
Metal Checks, case.	1
Machinery, packages.	40
I. R. Goods, cases.	6
Blowers, crates.	2
Nails, kegs.	74
Wheel, crates.	5
Pumps, cases.	2
Tin, pigs.	17
Electric Material, cases.	4
Scales, cases.	13
Hardware, packages.	48
Grindstones.	106
Manufactured Iron, packages.	337
Tinware, case.	1
Freezers, case.	1
Wheels and Axles, sets.	9
Agricultural Implements, pkgs.	12
Velocipedes, cases.	2
Spikes, kegs.	5
Washing Machines, cases.	2
PERU.	
Hardware, packages.	46
Wire Goods, case.	1
Lamp Goods, packages.	47
Sewing Machines, cases.	4
Nails, cases.	12
Manufactured Iron, packages.	40
Twine, bale.	1
Iron, packages.	2
Scales, packages.	3
Sandpaper, bales.	5
Cutlery, cases.	2
Hose, case.	1
Ice-Cream Freezers, case.	1
ROTTERDAM.	
Hardware, packages.	24
Whetstones, case.	1
Machinery, packages.	12
Sandpaper, bundles.	5
I. R. Goods, cases.	13
Spliter, plates.	2,310
Manufactured Iron, packages.	199
Copper, barrels.	540

Typewriters, packages.	3	75
Agricultural Implements, pkgs.	19	701
Windmill.	1	40
STETTIN.		
Machinery, packages.	9	970
SANTANDER.		
Machinery, packages.	3	500
SAN DOMINGO.		
Manufactured Iron, packages.	71	343
Lamp Goods, packages.	8	28
Machinery, packages.	13	86
Wire Goods, cases.	2	14
Tinware, crates.	2	32
Manufactured Brass, case.	1	28
Iron Anchors.	12	28
Bird Cages, case.	1	8
Headlights, cases.	2	69
Hardware, packages.	10	122
Sewing Machines, cases.	2	26
Scales, cases.	17	258
Agricultural Implements, pkgs.	14	63
Pumps, packages.	3	13
Nails, kegs.	40	90
Copper Tubes, crate.	1	63
Instruments, packages.	4	124
Electric Material, cases.	6	48
UNITED STATES OF COLOMBIA.		
Manufactured Iron, packages.	592	3,172
Lamp goods, packages.	14	128
Scales, case.	1	7
Saws, case.	1	67
Nails, kegs.	9	18
Washing Machines, crates.	4	52
Wire Goods, boxes.	2	5
Steel Tapes, case.	1	214
Horse Truck.	1	85
Sheet Iron, bundles.	42	797
Firearms, cases.	2	72
Cars.	15	4,000
Boiler.	1	1,236
Hardware, packages.	30	573
Saddlery, case.	1	43
I. R. Goods, cases.	2	60
Cutlery, cases.	53	883
Carriage Material, packages.	6	82
Fish Line, bale.	1	22
Machinery, packages.	27	1,171
Iron, bars.	16	49
Roofing Material, packages.	20	225
Iron Pipe, pieces.	13	106
Wringers, case.	1	10
Manufactured Copper, case.	1	18
Sewing Machines, cases.	61	1,156
Pump.	1	700
Iron Shaft.	1	120
Sheet Zinc, casks.	2	14
VENEZUELA.		
Hardware, packages.	91	1,258
Lamp Goods, packages.	13	93
Nails, boxes.	20	128
Pumps, packages.	4	181
Tinware, cases.	2	9
Sewing Machines, cases.	21	445
Shears, case.	1	19
Meters, cases.	2	55
Locomotive Material, packages.	7	270
Sheet Copper, crates.	2	232
Cutlery, cases.	2	168
Manufactured Iron, packages.	426	1,743
Machinery, packages.	173	2,323
Wire Goods, crate.	1	5
Water Coolers, case.	1	9
Brushes, case.	1	9
Copper Circle.	1	77
Agricultural Implements, cases.	3	35
Carts, packages.	14	148
Scales, cases.	7	140
Wheels and Axles, packages.	29	405
I. R. Goods, case.	2	28
Roofing Material, packages.	14	73
Refrigerator, crate.	1	16
VIENNA.		
Sewing Machines, cases.	110	2,960
Sandpaper, packages.	36	512

Price-Lists, Circulars, &c.

B. F. AVERY & SONS, Louisville, Ky.: Plows and Cultivating Implements. Illustrations are given of Plows, Harrows, Cultivators, Garden Plows, Planters, Steel Trees, &c. The catalogue is handsomely covered, and in arrangement and paper used shows an advance of this class of publications.

CLEVELAND TWIST DRILL COMPANY, Cleveland, Ohio: A small pamphlet entitled: "Facts are Stubborn Things," giving a short history of the business career of this company, following the growth of the concern from its establishment in 1874 to the present time. Their success is attributed to their being practical men thoroughly understanding their

business, and to making what mechanics want.

JOHN CHATILLON & SONS, 85-89 Cliff street, New York: Illustrated pamphlet calling attention to the full line of Butchers' Cutlery, made by Foster Brothers, for which they are sole agents. Their experience among butchers and marketmen is that the users of such tools require a high standard of excellence rather than cheapness, and with this in view they have bent their energies to the production of a superior quality of goods. The list includes a great variety of Knives, Choppers and Cleavers, Steels, Scrapers, Triers, Stringers, &c.

E. & T. FAIRBANKS & CO., St. Johnsbury, Vt.: Scales. A hanger of large proportions, on which is a map of the United States, overhung by a Scale. Throughout the States are illustrations of their line of Scales, which are shown in great variety. In the space devoted to the Atlantic Ocean is a knightly cross of the Imperial Austrian Order of Francis Joseph, and in the Pacific the insignia of the grade of Commander from the Bey of Tunis. These were conferred upon Thaddeus Fairbanks.

W. W. LAWRENCE & CO., Pittsburgh, Pa.: Varnish Stains ready for use. Samples in eight colors are shown of the Stains, producing imitations of natural woods, drying quickly with a handsome gloss. They are easily applied by any one, and are made especially for household use on such articles as chairs, settees, tables, &c. In addition to the above is issued a primer, entitled "Points on Putty."

Exports.

PER BARK "SEIER," OCTOBER 19, 1892, FOR BRISBANE, QUEENSLAND.

By F. & J. Meyer.—Axe Handles, 12 dozen, \$10; Copper Rivets, 12,000, \$15.

By R. H. Dana.—Corn Shellers, 20, \$116.

By Willard K. Freeman.—Wood Hames, 2 boxes and 1 case, \$86.70.

By Arkell & Douglas.—Handles, 319 dozen, \$412; Axes, 3 dozen, \$29; Wire, 1 case, \$40;

Mowers, 3, \$19; Emery Wheels, 1 case, \$290.

By R. W. Cameron & Co.—Barb Wire, 35,100 pounds, \$842.

By S. Hoffnung & Co.—Axes, 52 dozen, \$345;

Tools, 1 case, \$7; Agate Ware, 5 cases, \$230;

Wrenches, 2 cases, \$60; Hardware, 2 cases, \$9; Agate Ware, 2 cases, \$65; Nails, 1 box, \$8; Locks, 1 case, \$26; Bolts, 5 cases, \$66; Cow Bells, 2 cases, \$45; Lampware, 10 dozen, \$140; Locks, 1 case, \$25; Stoves, 14, \$21; Guns and Cartridges, 10 boxes, \$450; Axes, &c., 27 boxes, \$370; Hardware, 2½ gross, \$12

PER SHIP "GAINSBOROUGH," OCTOBER 20, 1892, FOR SYDNEY, N. S. W.

By R. H. Dana & Co.—Handles, 67 cases, \$627.

By W. K. Freeman.—Whips, 1 case, \$20.72;

Lamps, 24 cases, \$50; Axles, 1935 pounds, \$77.

By the F. B. Wheeler Company.—Axes, 33 cases, \$259.25.

By W. & B. Douglas.—Pumps, 4 packages, \$151.

By S. Oppenheimer Company.—Hardware, 4 boxes, \$60.

By S. Halsey & Co.—Hardware, 2 cases, \$38.94.

By C. E. Porter.—Bolts, 4 cases, \$130.

By Meriden Britannia Company.—Silver-Plated Ware, 12 pounds, \$229.05

By Winchester Repeating Arms Company.—Cartridges, 200,000, \$234.52; Wads, 80,000, \$45.58; Primers, 70,000, \$69.30.

By Strong & Trowbridge.—Axle Clips, 55 dozen, \$35; Bolt Cutters, ½ dozen, \$30; Bolts, 34,000, \$185.

By C. E. Porter.—Axes, 56 dozen, \$320.

By the Australasian-American Shipping Company.—Axes, 10 cases, \$257; Springs, 3,700 pounds, \$204; Iron Forgings, 2 cases, \$375; Axles, 1015 pounds, \$285; Castings, 2300 pounds, \$245.

By S. Hoffnung & Co.—Shovels, 50 dozen, \$187; Saws, 22 dozen, \$120; Pumps, 2 dozen, \$140; Hardware, 12 cases, \$65; Hose, 1000 feet, \$80; Nails, 1 case, \$33; Traps, 36 dozen, \$5; Wire, 100 spools, \$12; Lampware, 200 dozen, \$100; Wrenches, 15 dozen, \$26; Lampware, 1 case, \$44; Handles, 30 dozen, \$37; Stoves, 27 cases, \$225; Snaths, 3 cases, \$140; Axes, &c., 20 cases, \$510; Cartridges, Guns, Tools, Shells, 6 cases, \$1214.

By Arkell & Douglas.—Springs, 87 sets \$487.80; Fruit Jars, 40 dozen, \$184; Blocks 18 dozen, \$90; Pumps, 40 dozen, \$460; Mowers, 8 dozen, \$36; Nails, 2900 pounds, \$2780; Forges, 5 dozen, \$130; Fire Arms, 390 dozen, \$3054; Traps, 4 cases, \$56; Store Trucks, 8 packages, \$63; Nails, 90 kegs, \$175; Corn Mills, 10 packages, \$182; Thermometers, 1 case, \$212; Choppers, 5 dozen, \$45; Whips, 36 dozen, \$272; Wire, 260 pounds, \$12; Shovels, 220 dozen, \$120; Wringers, 4 cases, \$63; Cartridges, 1 case, \$25; Churns, 4 racks, \$67; Handles, 144 dozen, \$700; Axes and Hatchets, 180 dozen, \$1440; Tools, 16 cases, \$785; Hardware, 33 packages, \$4184; Lampware, 44 packages, \$728.

PER BARK "WAIMEA," OCTOBER 25, 1892, FOR LYTTELTON, NEW ZEALAND.

By Alfred Field & Co.—Mills, 5 cases, \$195. *By H. W. Peabody & Co.*—Hardware, 21 21 packages, \$220; Shovels, 3 cases, \$255; Meat Choppers, 5 packages, \$55; Farming Implements, 12 packages, \$235; Handles, 45 dozen, \$45; Farming Implements, 1 case, \$30.

By R. W. Forbes & Son.—Knives, 1 box, \$6; Axes, 1 box, \$1; Hardware, 3 cases, \$59; Nails, 10 cases, \$161.

By Arkell & Douglas.—Shovels, 1 case, \$95; Pencils, 1 case, \$80; Wringers, 12 cases, \$216; Mangles, 2 cases, \$58; Hay Forks, 1 case, \$64; Picks, 1 case, \$90; Axes, 3 cases, \$28; Choppers, 4 cases, \$40; Hardware, 1 case, \$78; Lampware, 25 cases, \$480; Tools, 3 packages, \$270; Handles, 173 dozen, \$85. *By H. W. Prabody & Co.*—Hardware, 20 packages, \$200; Oil Stoves, 2 crates, \$45; Wireware, 1 case, \$10; Horse Nails, 100 pounds, \$150; Lead Pencils, 1 box, \$10; Lampware, 1 case, \$5; Stoves, 10 packages, \$95; Hardware, 1 case, \$3; Shovels, 20 dozen, \$120; Hardware, 2 cases, \$215; Hardware, 10 packages, \$95; Iron Castings, 2 cases, \$15; Hardware, 17 packages, \$275; Blocks, 3 barrels, \$90; Twine, 1 bale, \$30; Hardware, 2 cases, \$30.

FOR CHRISTCHURCH.

By Edward Miller & Co.—Lamp Goods, 12 packages, \$180.

FOR DUNEDIN.

By Strong & Trowbridge.—Barb Wire, 200 reels, \$630.

By S. Hoffnung & Co.—Lampware, 6 cases, \$85; Shovels, 18 dozen, \$92; Lampware, 13 packages, \$250; Nails, 18 cases, \$297.

By Strong & Trowbridge.—Lampware, 1 barrel, \$10; Hack Saws, 1 case, \$10.

By R. H. Dana & Co.—Shovels, 3 cases, \$24.50.

By Rogers, Smith & Co.—Silver-Plated Ware, 1 case, \$67.98.

By John H. Storin.—Hardware, 2 boxes, \$50. *By Hartley & Graham.*—Fire Arms and Cartridges, 2 cases, \$109.10.

By Atlas Tack Corporation.—Nails, 16 cases, \$265.

By Manhattan Brass Company.—Lamp Goods, 15 packages, \$308.84.

By S. Hoffnung & Co.—Pistols, 1 case, \$85; Wrenches, 1 case, \$15; Hammers, 1 case, \$30; Wire Goods, 1 case, \$10; Thermometers, 1 case, \$3; Hardware, 1 case, \$2; Locks, 1 case, \$5; Lampware, 17 cases, \$250; Pistols, 2 cases, \$212; Twine, 1 case, \$4.

By R. W. Forbes & Son.—Axes, 12 dozen, \$106; Scales, 4 dozen, \$56; Hardware, 3 packages, \$38.

By Moiller & Quereau.—Lamp Goods, 26 packages, \$250.

By Arkell & Douglas.—Axes, 3 cases, \$85; Horse Nails, 6 cases, \$175; Wringers, 8 cases, \$144; Rakes, 1 case, \$98; Meat Choppers, 5 cases, \$212; Cordage, 1 barrel, \$40; Handles, 19 cases, \$165; Hardware, 17 packages, \$870; Castings, 29,873 pounds, \$674; Tools, 11 cases, \$218; Nails, 12 cases, \$60; Axes, 27 dozen, \$236; Plows, 9 cases, \$216; Chains, 7 cases, \$83.

By H. W. Peabody & Co.—Hardware, 7 cases, \$175; Lampware, 2 cases, \$5; Stoves, 8 packages, \$45; Hardware, 18 packages, \$340; Lampware, 11 packages, \$50; Churns, 5 racks, \$35; Stoves, 6 cases, \$45; Cartridges, 1 case, \$40; Nails, 1 case, \$10; Horse Nails, 9 cases, \$270; Wringers, 2 cases, \$50; Handles, 11 cases, \$125; Hardware, 14 packages, \$425; Shovels, 2 cases, \$175; Glue, 1 case, \$10; Wringers, 2 cases, \$45; Forks, 1 case, \$60; Trucks, 1 case, \$15; Horse Nails, 1575 pounds, \$210; Farming Implements, 1 case, \$25; Hardware, 2 cases, \$70; Lampware, 6 cases, \$25; Hardware, 4 cases, \$75; Stoves, 19 packages, \$115; Platedware, 2 barrels, \$140; Axes, 5 cases, \$115; Forks, 2 cases, \$45; Hardware, \$200; Barb Wire, 40 reels, \$175; Nails, 8 cases, \$245; Hardware, 4 cases, \$60; Lampware, 1 box, \$15; Barb Wire, 200 reels, \$575; Whips, 1 barrel, \$50; Farming Implements, 1 case, \$30; Nails, 6 cases, \$50; Hardware, 37 cases, \$425.

By Willard K. Freeman.—Axes, 2 cases, \$39.

FOR LYTTELTON.

By R. W. Cameron & Co.—Axes, 2 cases, \$60; Fence Wire, 20 reels, \$61; Axes, 1 box, \$18; Snaths, 1 bundle, \$5; Lanterns, 1 case, \$140; Handles, 1 case, \$19; Barb Wire, 600 reels, \$2375; Lamp Fixtures, 4 packages, \$50; Axes, 1 case, \$15; Handles, 20 cases, \$8.01; Tinware, 2 boxes, \$22; Wringers, 5 cases, \$43; Meat Choppers, 2 cases, \$75.

By Coombs, Crosby & Eddy.—Saws, 1 case, \$8; Fruit Jars, 3 cases, \$15.

By R. W. Cameron & Co.—Hydraulic Rams, 1 box, \$40; Steel Sinks, 2 crates, \$140; Iron Pumps, \$280; Rivets, 2 cases, \$60.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Notwithstanding the fact that politics has been the all-absorbing topic during the past week the needs of the Paint trade were large enough to keep grinders and manufacturers decidedly active in filling orders; and from present indications there will be no let up during the balance of the year. The activity is particularly noticeable for Zinc Oxide and White Lead, while Dry colors also have received a large share of attention. Prices have shown no material change, but some instances of underselling are rumored, wherein such concessions would be likely to assist the sale of a more profitable article. These instances, however, are rare and the general trend of the market has been upward.

White Lead.—The bulk of the business being done in this direction is confined to small orders, which, however, are sufficient in the aggregate to keep corrodors very busy. In fact, the consumption this season promises to be larger than for the corresponding periods during several years past. Trust prices are generally adhered to, but it is for this class of goods more particularly that shading of prices has been charged—which, however, has not been done for purposes of competition, but it is claimed merely to assist the sale of other articles in which the margin of profit is larger.

Red Lead and Litharge.—There is nothing outside of the routine trading to note for these articles, and, while there is a large enough business passing to keep dealers busy, it is made up chiefly of small orders for stock needed for current consumption, and prices have not been altered.

Zincs.—As a result of a very urgent demand, manufacturers of American Zincs are being pushed to their utmost capacity to keep pace with new orders and to make deliveries upon old contracts. The amount of new business coming in is particularly encouraging, as it includes chiefly orders for the finer qualities that compete largely with the French makes, and consumption of the latter is therefore kept within the limits of ordinary wants. Prices for both American and foreign, however, show no change, and the tone of the market throughout is a firm one.

Colors, &c.—There has been on the whole an improved demand for both Dry and Oil Colors. Carmine, Vermilion and Venetian Red have each been more active than during the preceding week, while mixed Paints also have been moved in considerable quantities. Prices have not been altered, but it is expected that a revised schedule for mixed Paints will be fixed at the National Convention soon to be held in this city.

Miscellaneous.—Weakness is still a feature of the Chalk market, but prices are quoted at \$1.40 ex steamer and \$1.75 for shipment. There is rather more of a spot demand for China Clay, but the inquiry

from the paper trade has been lessened in consequence of the drouth in this section of the country, which has necessitated the shutting down of a number of the large mills. The range is now quoted at \$13 @ \$18, according to quantity and brand. Talc is easy at 1¢ for car lots and 1 1/2¢ @ 1 1/2 for jobbing quantities, less the usual discount of 5%. Barytes, Terra Alba and Cobalt are moving along the old lines at unchanged prices.

Oils and Turpentine.

Perhaps the chief topic of interest is the revision of prices of Linseed Oil by Western crushers to conform with the recent Eastern advances, both now being quoted at the same figure. The general market for Oils has been quite active considering the excitement attendant upon the closing of a Presidential campaign. Lard Oil prices have fluctuated somewhat, but the feeling at the moment is rather steadier. In other lines there are no features of interest.

Linseed Oil.—There is still a wide diversity of opinion as to the attitude of independent crushers toward the Trust, and it is believed by many that the former have passed under the control of the latter. Confirmation, however, is still lacking. The terms of sale of city crushers have been amended so as to accord with those recently adopted in the West. The terms now generally quoted are 30 days, subject to 1% discount if paid within 10 days, which is practically the same as heretofore. But the change becomes apparent in the difference concerning empty packages. The rebate has been reduced from 2¢ per gallon on returned empty barrels and 3¢ on casks to 75¢ on the former, and 1 1/2¢ on the latter. These new terms, however, do not apply to contracts made previous to November 1. A large number of orders were placed just prior to the recent advances covering deliveries as far ahead in some cases as January 1, and the inquiry is momentarily slackened, although crushers report a good consuming demand for this season of the year.

Cotton Seed Oils.—There is nothing essentially new to be noted in this direction so far as values are concerned. There has been a good demand chiefly from Western consumers who have taken considerable quantities for shipment direct from the mills. The local demand has also been good, all of which has been sufficient to neutralize the effects of a lack of interest on the part of exporters. The sales have shown a larger average than for any time since the new crop oils have appeared, and were made usually upon the basis of previous quotations.

Lard Oil.—There has been a show of weakness for forward deliveries in consequence of the decline in the raw material, but the spot market is very lightly supplied and prices are firmly held. In fact it is decidedly difficult to obtain stock for prompt delivery, and the volume of business is consequently very high.

Fish Oils.—There is very little stock of Menhaden on hand and the market is consequently in a strong position. For Whale and Sperm Oils there is a moderate demand which is satisfied upon the basis of previous prices.

Olive Oil.—The market occupies about the same position as at the time of our last report. The demand for common qualities has been sufficient to sustain prices, while at the moment no offers of less than 65¢ for pure oil can be obtained.

Cocoanut Oil.—Ceylon is sold in limited quantities at 5 1/2¢ @ 5 1/2¢, but the bulk of the unsold stock has been put into store to await higher prices, and the market at the moment is very firm under the influence of strong cable advices. Cochin Oil on the spot is firmly held at 6¢ @ 6 1/2¢, but the movement is only moderate.

The J. G. C. Covered Steel Spring Hinge.

Coleman Hardware Company, 50 Dearborn street, Chicago, Ill., are offering the spring hinge illustrated herewith. Every part of the hinge is made of steel, making it strong and light, and effecting a large reduction in freight over cast hinges. The tension and closing powers are referred to

handle attached. The drum is inclosed in a case which is pivoted at each end, to enable it to turn either way with the slightest motion of the hands. The case also forms a guide to carry the ribbon straight over the drum, and a swivel in the handle prevents the ribbon from getting twisted, as it is designed to always run straight through the guides upon the drum. It is stated that the strength of the pull is 3 pounds to each handle when stand-



The J. G. C. Covered Steel Spring Hinge.

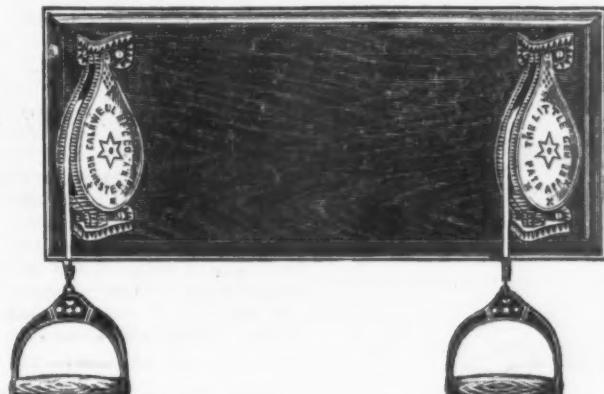
as remarkable, and also the fact that it is the only covered steel spring hinge on the market. The hinge is strongest at the closing point and will hold the door either open or closed. They are made in one size, $3\frac{1}{2} \times 3\frac{1}{4}$ inches, full size, and finished in electro nickel, copper, brass and Japanese. They are also made in Japan and copper bronze for special orders.

The Little Gem Health Exerciser.

Caldwell Mfg. Company, Rochester, N.Y., are making the exerciser shown in the accompanying illustration. A polished

ing close to the machine, and by stepping back to the extreme length of the ribbon a pull of 6 pounds to each ribbon is obtained, thus giving a variation of from 3 to 6 pounds, or, both together, from 6 to 12 pounds. The exercisers are handsomely finished, Berlin bronzed or nickel plated, mounted on polished hardwood boards. The exerciser is designed for the symmetrical development of business and professional men, ladies and children, in practical body building.

It is reported that a new syndicate has taken hold of the town company of Shef-



The Little Gem Health Exerciser.

steel clock spring, furnishing the resistance or pulling power, is placed inside of a drum, around the outer rim of which is coiled an aluminum bronze ribbon with a

field, Ala., and that they will try to straighten out the tangled affairs there and carry the contemplated improvements to completion.

Coltebaugh's Roller-Breast Chain.

Baker Chain & Wagon Iron Mfg. Company, Allegheny, Pa., have added to their products the breast chain as illustrated herewith. The object of the roller chain is



Coltebaugh's Roller Breast Chain.

to provide a connecting means between the neck yoke and hames rings, which will take up the movement of the yoke and not impart it to the horse. The makers claim the chain avoids sore necks, all wearing and raking of the ring on the end of the yoke; for as the pole and neck yoke swing from side to side, the movement is taken up by the carrying rollers moving or riding on the bar, thus obviating all jerks and sudden jars upon the horses. The point is made that the chain will last as long as five pairs of straps, and that its cost is but a trifle more than the ordinary old style chain.

The By-Pass Ratchet Burner No. 3 $\frac{1}{2}$.

The Electric Gas Lighting Company, 195 Devonshire street, Boston, Mass., are introducing an improvement in electric hand-lighting gas burners, as illustrated



The By-Pass Ratchet Burner No. 3 $\frac{1}{2}$.

herewith in the full-size cut, being designed to take the place of their No. 7 and No. 11 lighters. The manufacturers claim that only one contact is made in four operations of the movable arm forward and back to light and extinguish the gas; that this not only saves 50 per cent. of the battery power, but preserves the wire spring from heat and smoke and so prevents grounds at the contact points, which are always kept clean; that the No. 3 $\frac{1}{2}$ is smaller than their bulb ratchet burner, but has an amply large gas way, into which is inserted a perfect working gas check which prevents hissing, and that it is a ratchet hand lighter whose

movable electrode cannot be held in the flame until softened and robbed of its tension. Attention is called to the fact that the electrode is not lifted over the fixed one through the flame, but passes under and out of the flame instead.

The Reversible Hinge Lug Trolling Bait.

The Enterprise Mfg. Company, Akron, Ohio, are offering the trade the trolling

that with this device the spinning is almost automatic, obviating the jerky, wobbling motion, and that the spoon imitates the live fish to perfection.

Wire Screw Drivers.

Williamson Wire Novelty Company, Newark, N. J., are putting on the market screw drivers as illustrated herewith. They are made in two styles, each 4½ inches long, of crucible steel tempered wire; the

ment over the wood-handled driver, with which there is the liability of the blade dropping out. The No. 15 is capable of turning heavy screws from either iron or hard wood work.

Milk or Farina Boiler.

Stransky & Co., 265-267 Canal street, New York, importers of German kitchen ware, are introducing a steel enameled blue and white double boiler, as here shown. There is a tube running from the bottom of the inner vessel through an opening in the cover provided for that purpose. Some of the advantages referred to are that food can be prepared in less time in consequence of the heat passing through the tube, allowing the contents to be heated from both sides and the



Fig. 1.—The Reversible Hinge Lug Trolling Bait.

Fig. 2.—The Hinge Lug, with Spoon Reversed.

bait as illustrated in Fig. 1. The manufacturers claim that with this hinge the blade "finds its own gravitation according

one with double ring being a somewhat heavier article capable of heavier work. The No. 11 is designed for light work, as



Fig. 1.—No. 11 Screw Driver.



Fig. 2.—No. 15 Screw Driver.

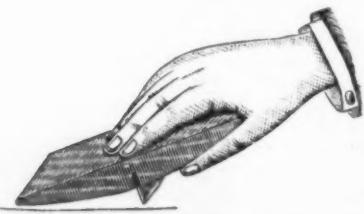
to the current of water in which it is used," on sewing machines, and is made especially and that as soon as the fish is hooked the blade reverses, as shown in Fig. 2. Also

for ladies' use, with a smooth polished surface, and is referred to as an improve-

ment over the wood-handled driver, with which there is the liability of the blade dropping out. The No. 15 is capable of turning heavy screws from either iron or hard wood work.

Spruill's Patent Block Scraper.

John Chatillon & Sons, 85-89 Cliff street, New York, are offering in connection with their line of butchers' tools a block scraper, as here shown. It consists of a section of hard wood 6 x 3½ x 1½ inches, tapered from the middle, into the center of which a piece of sheet steel 1½ inches long and the width of the block is driven half way. A firm grip on the block is



Spruill's Patent Block Scraper.

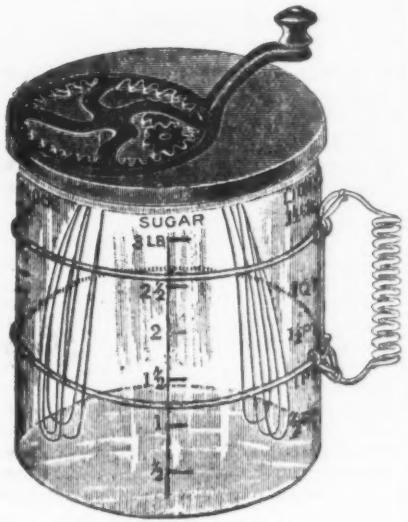
assured with one or both hands. Among the advantages alluded to by the makers are, that it will scrape as smooth as a plane, last a long time and costs but a trifle; that it dispenses with the use of water, which assimilates with the blood, &c., entering the pores of the wood, giving the bench or block a dingy appearance.

THE AMERICAN RADIATOR COMPANY. Chicago, Ill., with branch offices in New York, Boston, Minneapolis and St. Paul, issue a pocket catalogue of exceptionally attractive appearance. It is of oblong shape, bound in heavy cardboard, the front page being decorated with prettily designed scroll printed in red, with the

American Radiator Company's name across it in raised black letters. In an introductory note they call the attention of the trade to the extensive assortment of radiators that are noted in the pages that follow, which is the result of an experience covering more than a quarter of a century. The catalogue contains nearly 90 pages, the majority of which carry illustrations of steam or hot-water radiators in plain and ornamental designs of ordinary or odd shapes. There is the direct steam and hot-water radiator, the window, circular, corner, stairway, several styles of direct-indirect radiators, indirect radiators, dining room flue radiators, &c. The catalogue is divided into three parts, pages 6 to 36 illustrating the radiators manufactured by the Pierce plant of the American Radiator Company, located in Buffalo; pages 38 to 48 give the product of the Detroit plant, Detroit, Mich., and pages 51 and 79 show the radiators made by the Michigan plant at Detroit, Mich. The publication is very attractive from a typographical point of view, the red and blue inks contrasting pleasingly, and the engravings being finely executed. A full telegraphic code completes the volume.

The Household Jewel.

The Gravity Twine Box Company, 9 South Water street, Cleveland, Ohio, are offering a household article as illustrated



The Household Jewel.

herewith. It consists of a glass receiver, to which a wire handle is attached; the glass being marked to measure 1 pint, 1½ pints, 1 quart, 1½ quarts, 2 quarts, and is also marked to take the place of scales in weighing sugar, flour, &c. The gearing consists of three wheels, the larger one being taken off when the cover is cleaned. The small wheels revolve inside, the large one giving a quick double motion. The whippers are made of spring steel tinned wires, being twisted in the center, leaving a hole for the shaft, looped on each side with a washer both above and below the wires; after which they are dipped in melted solder, making a neat, strong job, easily kept clean. The article is designed as an egg beater, cream whipper, cake beater, drink mixer, and for freezing ice cream. The makers claim that the white of a fresh egg can be beaten in 40 seconds so that the jar can be turned upside down, and that the action of the whips is such that a single egg is held in a narrow space, as if beaten in a small bowl.

Compound Cone Heater.

In the accompanying illustration we present a general view of a new oil stove which is being introduced to the trade by A. White of Geneseo, Ill. It consists of a wrought-iron skeleton frame, the bottom plate being so arranged as to hold an ordinary oil lamp. The frame supports upon its top a Russia iron nickel trimmed heating drum containing a series of cones occupying different positions, and so arranged as to radiate to the largest extent possible the heat generated by the lamp. At the base of the drum is a nickel-plated reflector which serves to throw a large



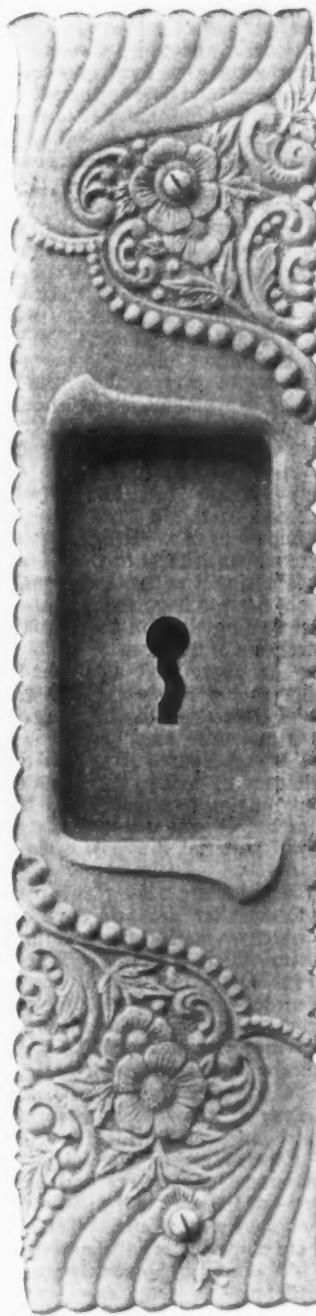
Compound Cone Heater.

proportion of the heat toward the floor. The first cone, we understand, is so constructed as to cause a current of air to surround the chimney, thus preventing it from becoming overheated. The ornament top of the drum and the urn which surmounts it are nickel-plated, adding much to the general appearance of the heater. One size is made, measuring 13 inches in diameter at the bottom and standing 38 inches high. The drum is 8½ inches in diameter. The open section at the bottom, in which is placed the lamp, permits a larger amount of heat, the manufacturer claims, to be thrown to the floor than it is possible to obtain from a closed lamp section. The device here illustrated serves the double purpose of furnishing heat and light, the arrangement being such that the light can be shut off by means of a metallic curtain when desired, or the lamp may be used separately for lighting if necessary.

Sliding Door Escutcheon.

The Russell & Erwin Mfg. Company, New Britain, Conn., and New York, have just made an addition to their line of door and window furniture, as represented by the sliding door escutcheon here illustrated. This is the product of a new method in manufacture as applied to metal work, accomplished only through the expenditure of much time and money. It seems destined to supplant, to a good extent, the old mode in medium-priced ware. It is progressive in the direction of die

making for embossing or stamping designs on a large scale. The escutcheon shown is the best specimen thus far obtained in the process of stamping, which permits



Stamped Sliding Door Escutcheon, Three-Quarters Size Cut.

tasteful and effective patterns at moderate cost. The goods will be supplied in a variety of finishes.

The Moderate-Sized Cordage Plant.

The tendency to build moderate-sized cordage manufacturing plants is once more a feature of the business. We say "once more," because about a year ago, when the National Cordage Company secured control of nearly all the competing plants and made arrangements with the leading cordage machinery makers in this country and Great Britain by which it would be impossible for new concerns to secure an equipment of the necessary machinery, it was thought by some that there would be no more small-sized plants put in operation. The reasons assigned were that the position of the National Cordage Company was so substantial that a small plant could not compete with it, and even if any one was so foolhardy as to desire to sink his

money in such an enterprise he would be mercifully restrained from doing so by the National Company's arrangements, mentioned above, with the machine makers.

But not many months passed before a change in the situation was wrought by the discovery that the National Company had overlooked some English concerns who were willing and able to furnish cordage machinery, and by some well-equipped machine plants in this country going into the manufacture of cordage machinery. These developments insured the supply of the machinery required by new cordage manufacturing concerns. We now see the result in the moderate-sized plants which have been erected, are being built, or are projected, in Auburn, N. Y., Miamisburg, Ohio, Newburyport, Mass., St. Paul, Minn., Brantford, Ontario, Winnipeg, Man., and other places.

A moderate-sized cordage plant in the hands of capable managers should be a very profitable enterprise, and be a safe investment for capital. A plant of 5 or 10 tons daily capacity can be operated cheaply enough to compete with the largest concern in the cordage business in this country to-day. It can buy fiber in moderate quantities at the most favorable times, securing it at the best prices. As it does not need to have an immense supply of fiber coming along in an unbroken line, its purchases of fiber can be made without having an appreciable effect, and it will be able to buy its necessary amount at times of depression in the fiber market, when a moderate amount can be secured at the lowest figure. By not attempting to influence or control the prices of fiber, but only buying its supply at the best time and prices, it can always rely upon a supply of material at as low prices as anybody.

These moderate-sized plants have another element for profit in their composition which is sometimes overlooked in canvassing their prospects. Whoever examines the early histories of the present large cordage manufacturing concerns will find that every one peculiarly interested in or employed by them worked in season and out of season to roll up the profits. But at the present time it will be found that many of these same concerns, now grown to large proportions, have accumulated a considerable amount of useless timber—some proprietors and some employees—which seriously handicaps them in their business efforts. The new concerns are much better in this respect than these old established manufacturers, and the difference in some cases is so great that this item alone would assure a profit for the newly established manufacturers.

The foregoing will show why these new cordage manufacturing enterprises of moderate size are entitled to great respect, and should be watched with considerable interest by those who would be thoroughly posted on the cordage business and who desire to accurately judge the tendency of the rope and twine markets.—*Cordage Trade Journal.*

San Francisco News.

October 31, 1892.

Portland, in the person of one of her capitalists, is about giving an object lesson to our manufacturers. What we have failed to do for ourselves, is, if report be true, about to be done for us by W. H. Watson, a member of the firm of Smith Bros. & Watson of Portland, Ore. He has purchased a deposit of magnetic ore on the West Coast of South America. Mr. Watson is about to establish works in this city which shall not only be able to supply the demands of whole coast, but even to ship East, and he believes that a good healthy competition with the Eastern arti-

cle can be established. The deposit is said to be practically inexhaustible. The steel blooms will be shipped from Mexico, and in this city converted into sheets, bars, &c. It will be of the first importance to the trade and industries of this city to have such an establishment in our city employing its army of workmen and giving employment to another small army in correlated industries, rendered possible by its existence. It would give San Francisco the impetus she needs, and after all iron and steel industries in our day are the foundation, so to say, of every other. We have been promised a good deal of work in this line for the past year or so, foundries with new and enlarged facilities, a gun foundry at Benicia, a manufacture of forgings at Baden, and, though last, not least, this new industry. I suppose that within a year or so some one of these will materialize and that the old order of things so rudely interrupted by the great strike will have begun to give way to a new.

Local business in the line of hardware, iron and agricultural implements has been improving steadily for some time, and may now be regarded as good. Not, however, quite as good as in other years, but good compared to the preceding nine months of 1892, which were, to say the least, not at all satisfactory. The crops have been garnered, the outlook for a new year is favorable, and orders are coming in much more freely than for a long while past. The feeling that the monopoly of the Transcontinental Association has been broken, too, inspires all classes with renewed hope and courage. Especially is this the case with San Francisco merchants, who see the possibility of competition with other coast centers already well within their grasp. The arrival of the steamer "Conemaugh" on October 21 with a large cargo, consisting in large part of hardware, iron, &c., has supplied our merchants with a goodly stock obtained for reasonable freight rates—for freight rates, indeed, that cannot be competed with by rail. There is now on the way merchandise to the amount of 40,000 tons, shipped at low freight rates from New York and Philadelphia to this city, and it is no exaggeration to say that at least 10,000 tons of it are made up of hardware and iron, fence wire, nails, &c. We will be able to distribute these more widely over the coast than we could have done previously since 1867.

Imports of pig iron have of late been few and far between, but there is no special demand at the present moment. The foundries are not all active, and prices are low—down to \$19, lower than has ever been known on this coast before. Some special brands bring a couple of dollars higher, but that is about the basis.

There is no special demand for tin plate or pig tin, and both are dull, the former at \$5.87 $\frac{1}{2}$, the latter at 23 cents. The "Mariposa" brought 657 ingots of Australian tin to hand the other day.

The new cruiser will be launched at the shipyard at the Potrero in a few days—another triumph for California shipbuilding. Though young in the business this city is well abreast of her competitors in any other part of the United States.

There is a fair amount of goods arriving here by rail. For the past two weeks we have had 67 carloads to hand. They consisted of 7 cars of agricultural implements, 9 of hardware, 11 of stoves, 13 of machinery, 4 of iron, 5 of safes, 4 of wire, 4 of pipe, 1 of sheet iron, 1 of Babbitt metal, 3 of steel, 3 of wagons, 1 of beams, 1 of forgings, 3033 pounds copper, 34,285 pounds zinc, 2260 plates spelter, 1000 barrels nails.

A powerful reservoir of natural gas has been struck in the Murraysville region, whence Pittsburgh derives its supply.

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Current Hardware Prices.

NOVEMBER 9, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5% signifies that the goods in question are sold at prices ranging from discount 50 and 10% to discount 50 and 10 and 5%.

Adjusters, Blind—

Domestic	10¢	doz \$3.00, 33½%
Excelsior	10¢	doz \$10.00, 50&10&2%
North's	10¢	list net @ 10%
Zimmerman's—See Fasteners, Blind.		

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—

Eagle Anvils, 7 lb 10¢	15@15&5%
Peter Wright's	11@11½%
Armitage's Mouse Hole	10@10½%
Am. Wrought, Horse shoe brand	11@11½%
Trenton	10@10½%
Wilkinson's	10@11½%
Moore & Barnes Mfg. Co.	33½@33½%

Anvil Vise and Drill—

Millers Falls Co., \$18.00	20%
Cheney Anvil and Vise	25%
Allen Anvil and Vise, \$5.00	40&10%
Star	45@5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglas Mfg. Co.	75¢
Wm. A. Ives & Co.	
Humprey's Mfg. Co.	
French & Swift & Co. (F. H. Beecher)	
P. S. & W. Co.	

Rockford Bit Company	55¢
Cook's, Douglas Mfg. Co.	60¢
Cook's, N. H. Copper Co.	60¢
Ives' Circular Lip	60¢
Patent Solid Head	30¢
C. E. Jennings & Co., No. 10, extension	40¢
HP	40¢
C. E. Jennings & Co., No. 30	60¢
C. E. Jennings & Co., Auger Bits, # set, 32½ quarters, No. 5, \$5.00; No. 30, \$3.50@5%	45¢
Lewis' Patent Single twist	45¢
Russell Jennings' Augers and Bits, 25@5%	45¢
Imitation Jennings' Bits	60@60@10%
Pugh's Black	20¢
Pugh's Jennings Pattern	30¢
Car Bits	60@60@10%
Car Bits, P. S. & W. Co.	60@10%
Snell's Car Bits	60¢
L'Hommedieu Car Bits	15@10%
Korster Pat. Auger Bits	20¢
Cincinnati Bell-Hangers' Bits	30@10%

Bit Stock Drills—

Morse Twist Drills	50@10@5%
Standard	50@10@5%
Cleveland	50@10@5%
Syracuse, for metal	50@10%
Syracuse, for wood (wood list)	30@30@5%
Cincinnati, for wood	30@10%
Cincinnati, for metal	45@10%

Expansive Bits—

Clark's small, \$18; large, \$30, 35@35@10%	
Ives' No. 4, 7¢ doz \$0.00	40¢
Swan's	40¢
Steers', No. 1, \$20; No. 2, \$22,	35¢
Stearns' No. 2, \$48	20¢

Gimlet Bits—

Common	7¢ gross \$2.75@2.35
Diamond	7¢ doz \$1.25, 40@10@10%
Bee	25@25@5%
Double Cut, Shepardson's	45@45@10%
Double Cut, Ct. Valley Mfg. Co.,	45@45@10%
Double Cut, Hartwell's, 7¢ gro.	45@25
Double Cut, Douglass'	40@10%
Double Cut, Ives	60@60@10%

Hollow Augers—

Ives'	33½@33½@33½
French, Swift & Co.	10@10@10%
Douglas'	10@10@10%
Bonney's Adjustable, 7¢ doz \$48	50¢
Stearns'	20@10%
Ives' Expansive, each \$4.50, 50@5%	
Universal Expansive, each \$4.50, 20%	
Wood's	25@25@10%
Cincinnati Adjustable	25@10%
Cincinnati Standard	25@10%

Ship Augers and Bits—

L'Hommedieu's	15@10@15@10@5%
Watrous'	15@10@15@10@10@5%
Snell's	15@10@15@10@5%
Snell's Ship Auger Patt'n Car Bits	15@10@15@10@5%

Awl Hafts—See Hafts, Awl.

Awls—

Awls, Sewing, Common	7¢ gr. \$8.50@8.50
Awls, Should. Peg.	7¢ gr. \$1.50@1.50
Awls, Pat. Peg.	7¢ gr. 25¢@25¢
Awls, Shouldered Brad.	7¢ gr. \$1.30@1.40
Awls, Handled Brad.	7¢ gr. \$2.50@2.00
Awls, Handled Scratch.	7¢ gr. \$4.00@4.50
Awls, Socket Scratch.	7¢ doz \$1.10@1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

Plain, Beveled.	
First quality, best brands	7.00
First qual., other brands	6.50
Second quality	5.50
Axe Grease—See Grease, Axe.	6.00

Axes—

Concord Axes, loose collar	41@41@41@41
Concord Axes, solid collar	54@54@54@54
National Tubular Self Oiling	33½@33½@33½@33½

Bag Holders—See Holders, Bag.

Balances—

Spring Balances	40¢
Chatillon, 7¢ doz \$0.80, 0.95	1.75 net
Chatillon Straight Balances	40¢
Chatillon Circular Balances	50@10@5%

Barb Wire—See Wire, Barb.

Bars—

Crow—

Cast Steel	7¢ b. 3¢
Iron, Steel Points	7¢ b. 3¢

Basins, Wash—

Standard Fiberware, No. 1, 10½" inch	82
12 inch, \$2.25 13½" inch, \$2.75; 15" inch, \$3.25	
\$3.25	

Beams, Scale—

Scale Beams, List Jan. 12, '92	50@10@5%
Chatillon's No. 1	40¢

Chatillon's No. 2	50¢
Custer's	35¢

Beaters—

Egg—

Dover	7¢ doz \$1.20@8.50
Duplex (Standard Co.)	7¢ doz \$1.25
Rival (Standard Co.)	7¢ doz \$1.00
Duplex Extra Heavy (Standard Co.)	
Bryant's	7¢ gross \$1.50
Double (H. & R. Mfg. Co.)	7¢ gross \$1.00
\$12.00; No. 1, \$15.00; No. 2, \$18.00	
Easy (H. & R. Mfg. Co.)	7¢ gross \$1.20
Triple (H. & R. Mfg. Co.)	7¢ gross \$1.50
Spiral	7¢ gross \$1.25 @ 45¢
Improved Acme (H. & R. Mfg. Co.)	7¢ gross \$1.00
Paine, Diehl & Co.	7¢ gross \$2.40
Silver & Co.	7¢ doz \$5.50

Beaters—

Egg—

Dover	7¢ doz \$1.20@8.50
Duplex (Standard Co.)	7¢ doz \$1.25
Rival (Standard Co.)	7¢ doz \$1.00
Duplex Extra Heavy (Standard Co.)	
Bryant's	7¢ gross \$1.50
Double (H. & R. Mfg. Co.)	7¢ gross \$1.00
\$12.00; No. 1, \$15.00; No. 2, \$18.00	
Easy (H. & R. Mfg. Co.)	7¢ gross \$1.20
Triple (H. & R. Mfg. Co.)	7¢ gross \$1.50
Spiral	7¢ gross \$1.25 @ 45¢
Improved Acme (H. & R. Mfg. Co.)	7¢ gross \$1.00
Paine, Diehl & Co.	7¢ gross \$2.40
Silver & Co.	7¢ doz \$5.50

Bells—

Cow—

Common Wrought	60@10@10%
Western, Sargent's list	70@10@10%
Kentucky, "Star"	20@10%
Kentucky, Sargent's list	70@10@10%
Kentucky Durham	70@10@10%
Dodge, Genuine Kentucky	70@10@10%
Texas Star	50@10@50@10@5%

Door—

Gong, Abbe's	33½@10%

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Chalk Lines—See *Lines*.**Chisels**—**Socket Framing and Firmer**

P. S. & W.	
New Haven.	
Witherby.	75&5@75&10&5%
Mix.	
Ohio Tool Co.	75@75&5%
Douglas.	30%
Buck Bros.	30%
Merrill.	60&10@60&10&5%
L. & J. White.	30@30&5%

Tanged and Miscellaneous.

Tanged Firmer.	40&10@50%
Butchers'.	84.75@5@50%
Spear & Jackson's.	5@2
Buck Bros.	30%
Acme.	50@50%
Nickel Plated.	10%

Chucks—

Beach Pat.	each, \$8.00, .20%
Morse's Adjustable.	each, \$7.00, 20@20&5%
Danbury.	\$6.00, 30@30&5%
Sterling, Balz Pat.	35@5%
Graham Patent.	35@5%
Skinner's Patent Chucks.	
Combination Lathe Chucks.	33@5%
Universal Lathe Chucks.	40%
Independent Lathe Chucks.	40%
Drill Chucks.	15%
Union Mfg. Co.	
Victor.	88.50, 25%
Combination.	40%
Universal.	40%
Independent.	40%

Churns—

Tiffin Union, each, 5 gal.	\$3.25; 7 gal.
83.75; 10 gal.	\$4.25.
McDermid Star Barrel Churn.	each
6 gal., \$2.60; 10 gal., \$2.75; 15 gal.	
8.00; 20 gal., \$3.25.	

Clamps—

R. I. Tool Co.'s Wrought Iron.	25%
Adjustable, Cincinnati.	15&10@15&5%
Adjustable Hammers.	15@15&5%
Adjustable Stearn's.	30@30&10%
Stearn's Adjustable Cabinet and Cor-	ner.
ner.	30@30&10%
Cabinet, Sarg. nt's.	70&10%
Carriage Mak. rs', Sargent's.	75@75&5%
Carriage Makers', P. S. & W. Co.	40&10%
Eberhard Mfg. Co.	40@10@40&10&5%
Warner's.	40@10@40&10&5%
Saw Clamp, see Vises, Saw Flers.	
Carpenter's, Cincinnati.	25@10%

Cleavers, Butchers'—

Bradley's.	25@30%
L. & J. White.	20&5%
Beatty's.	40@40&5%
New Haven Edge Tool Co.'s.	40%
P. S. & W.	33@40@33@10@10%
Foster Bros.	30%
Schulte, Lohoff & Co.	40@40&5%

Clips—

Norway, Axle, 34 & 5-16.	55@5&5%
2d grade Norway Axle, 34 & 5-10...	65@5&5%
Superior Axle Clips.	60@5@60@70%
Norway Spring Bar Clips, 5-10...	60@5&5%
Wrought Iron Felloe Clips.	7@5@5@5
Steel Felloe Clips.	7@5@5@5
Baker Axle Clips.	25@5%

Cloth and Netting, Wire—
—See *Wire, etc.***Cockeyes**—

Cocks, Brass	50%
Hardware list.	60@2%

Coffee Mills—See *Mills, Coffee*.**Collars, Dog**—

Chapman Mfg. Company.	50@10@60%
Medford Fancy Goods Co.	40@10@50%
Embossed, Gilt, Pope & Steven's list.	30@10%

Clips—

Leather, Pope & Steven's list.	40%
Brass, Pope & Steven's list.	40%
Brass, Fitch's.	50@10@50@10@10%
Rubber, per doz., \$10.00.	25%
American Curry Comb Co.	33@5@40%

Compasses, Dividers, &c.

Compasses, Calipers, Dividers.	70@70@10@
Bens & Call Co.'s	Dividers.
	60@5%
Compasses and Calipers.	50@5%
Wing and Inside or Outside.	50@5%
Double.	60%
Call's Patent Inside.	30%
Excelsior.	50%
J. Stevens & Co.'s.	25@10%
Starrett's	
Spring Calipers and Dividers.	25@10%
Lock Calipers and Dividers.	25%
Combination Dividers.	25%

Coopers' Tools—

See Tools, Coopers'.
Cord—

Sash—

Common.	7@5@11@
Patent, good quality.	7@5@12@3@
White Cotton Braided, fair.	7@5@12@3@
Common, Russia Sash.	7@5@12@3@
Patent Russia Sash.	7@5@12@3@
Cable Laid Italian Sash.	7@5@21@22@
India Cable Laid Sash.	7@5@21@22@
Silver Lake—	
A quality, White, 50¢.	25%
B quality, Drab, 55¢.	25%
B quality, White, 30¢.	10%
B quality, Drab, 35¢.	10%
Sylvan Spring, Extra Braided, White, 34¢.	
Sylvan Spring, Extra Braided, Drab, 34¢.	
Semper Idem, Braided, White, 27@28¢.	
Egyptian, India Hemp, Braided, 26¢.	
Massachusetts, White.	26¢
Samson—	
Braided, White Cotton, 50¢.	30@30@5%
Braided, Drab Cotton, 55¢.	30@30@5%
Braided, Italian Hemp, 55¢.	30@30@5%
Braided, Linen, 80¢.	30@30@5%
Tate's Cotton Braided, White, 7@5@10@.	
Ossawamills—	
Braided, Giant, White, 7@5@10@.	20%
Braided, Giant, Drab and Fancy, 7@5@.	10%
Braided, Crown, White, 7@5@10@.	50%
Braided, Crown, Drab and Fancy, 7@5@.	50%

Drills and Drill Stocks—

Blacksmiths'.	each 21.75
Blacksmiths' Self Feeding.	each \$7.50, 20%
Prost, P. S. & W.	40@10%
Breast, Wilson's.	30@5%
Breast, Millers Falls.	each \$3.00, 25%
Breast, Bartholomew's.	each \$2.50
	25@10@40@5%
Ratchet, Merrill's.	20@20@5%
Ratchet, Ingerson's.	25%
Ratchet, Parker's.	20@20@5%
Ratchet, Whitney's.	20@10@5%
Ratchet, Weston's.	20@25@5%
Ratchet, Moore's Triple Action.	25@25@30@
Ratchet, Curtis & Curtis.	30@30@
Whitney's Hand Drill, Plain.	\$11.00;
Adjustable.	\$12.00.
Wilson's Drill Stocks.	10%
Automatic Boring Tools.	\$1.75@1.85
Clecoope Automatic Drill.	20@10@

Twist Drills—

Cleveland.	50@10@10%
Diamond, W. & B.	50@10@10%
Graham's Pat. Groove Shank.	50@10@10%
Morse.	50@10@10%
New Process.	50@10@10%
Standard.	50@10@10%
Syracuse (Meta list).	50@10@

Wire Picture—

Braided or Twisted.	80@5@80@15%
Corkscrews	—See <i>Screws, Cork</i> .
Corn Knives and Cutters	—See <i>Knives, Corn</i> .
Crackers, Nut	—
Table (H. & B. Mfg. Co.)	40%
Blake's Pattern.	22.50.
Turner & Seymour Mfg. Co.	50%
Acme.	50@50%
Japanned.	50%
Nickel Plated.	10%

Cradles—

Grain.	50@5@2@5@10@10@2%
Crayons	—
White Crayons, 1/2 gross.	8¢
D. M. Stewart Mfg. Co., Metal Work-	ers.
ers.	25%
D. M. Stewart Mfg. Co., Rolling Mill.	25%
25¢ gross, \$2.50.	25%
See also Chalk.	

Crow Bars—See *Bars, Crow*.

Curry Combs	—See <i>Combs, Curry</i> .
Curtain Pins	—See <i>Pins, Curtain</i> .
Cutters	—
Meat—	
Dixon's, 7¢ doz.	40@5%
Nos. 1.	8¢
Nos. 2.	10¢
Nos. 3.	12¢
Nos. 4 and 00.	Acme and Ideal.
Nos. 5.	15¢
Nos. 6.	20¢
Nos. 7.	25¢
Nos. 8.	30¢
Nos. 9.	35¢
Nos. 10.	40¢
Nos. 11.	45¢
Nos. 12.	50¢
Nos. 13.	55¢
Nos. 14.	60¢
Nos. 15.	65¢
Nos. 16.	70¢
Nos. 17.	75¢
Nos. 18.	80¢
Nos. 19.	85¢
Nos. 20.	90¢
Nos. 21.	95¢
Nos. 22.	100¢
Nos. 23.	105¢
Nos. 24.	110¢
Nos. 25.	115¢
Nos. 26.	120¢
Nos. 27.	125¢
Nos. 28.	130¢
Nos. 29.	135¢
Nos. 30.	140¢
Nos. 31.	145¢
Nos. 32.	150¢
Nos. 33.	155¢
Nos. 34.	160¢
Nos. 35.	165¢
Nos. 36.	170¢
Nos. 37.	175¢
Nos. 38.	180¢
Nos. 39.	185¢
Nos. 40.	190¢
Nos. 41.	195¢
Nos. 42.	200¢
Nos. 43.	205¢
Nos. 44.	210¢</td

Snaps Harness &c.

Anchor (T. & S. Mfg. Co.)	65¢
Fitch's (Bristol)	50¢ & 10%
Hotchkiss	10¢
Andrews	50¢
Sargent's Patent Guarded	70¢ & 10 & 10%
German, new list	40¢ & 10%
Cover	50¢ & 10 & 5¢
Cover, New Patent	50¢ & 10 & 5¢
Cover, New R. E.	60¢ & 10 & 5¢
Covered Spring	60¢ & 10 & 10%
Cover's Saddlery Works' Triumph	33½%

Snaths, Scythe-

List	50¢ & 50 & 5¢
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Soldering Irons-

See Irons, Soldering.

Splittoons, Cupidors, &c.**Standard Fiberware**

Cupidors, 8½-inch, 1/2 doz.	No. 5, \$8 ; No. 5X, \$9.
Splittoons, Daisy, 8-inch, No. 1, \$4 ; 10 and 11 inch, \$6.	

Spoke Shaves-

See Shaver, Spoke.

Spoke Trimmers-

See Trimmers, Spoke.

Spoons and Forks-**Tinned Iron-**

Basting, Cen. Stamp. Co.'s list	70¢ & 10¢
Solid Table and Tea, Cen. Stamp. Co.'s list	70¢ & 10¢
Buffalo, S. S. & Co.	33½ & 25¢

Silver Plated—	
4 months or 5% cash 30 days :	
Meriden Brit. Co., Rogers	40¢ & 15¢
C. Rogers & Bros.	40¢ & 15¢
Rogers & Bros.	40¢ & 15¢
Reed & Barton	40¢ & 15¢
Wm. Rogers Mfg. Co.	40, 15 & 5¢
Simpson, Hall, Miller & Co.	40, 15 & 5¢
Holmes & Edwards Silver Co.	40, 15 & 5¢
L. Boardman & Son	50¢ & 12½¢

Miscellaneous—	
Holmes & Edwards Silver Co.:	
No. 67 Mexican Silver	50¢ & 10 & 5¢
No. 30 Silver Metal	50¢ & 10 & 5¢
No. 24 German Silver	50¢ & 10 & 5¢
No. 50 Nickel Silver	50¢ & 5¢
No. 49 Nickel Silver	50¢ & 10 & 5¢

Wm. Rogers Mfg. Co.:	
Rogers' Silver Metal	50¢ & 10 & 5¢
180° Rogers' German Silver	60¢ & 10 & 5¢
220° Rogers' Nickel Silver	50¢ & 5¢
German Silver	50¢ & 5½¢

German Silver, Hall & Elton	50¢ & 5¢ cash
Nickel Silver	50¢ & 5½¢ & 5¢ cash
Britannia	60¢ & 5½¢
Boardman's Nickel Silver, list July 1, 1891	60¢ & 7½ & 5½¢
Boardman's Britannia Spoons, case lots	60¢ & 5¢ cash

Spring—	
Door—	
Torrey's Rod, 39 in., 1/2 doz	\$1.20 & 12½¢
Gray's, 1/2 gr. \$20.00	25¢
Bee Rod, 1/2 gr. \$20.00	20¢ & 25¢
Warner's No. 1, 1/2 doz \$2.50 ; No. 2, \$3.30	
Gem (Coll), list April 19, 1886	10¢ & 15¢
Star (Coll), list April 19, 1886	20¢ & 20 & 5¢
Victor (Coll)	60¢ & 10 & 5¢ & 10 & 5¢
Champion (Coll)	60¢ & 10 & 5¢ & 10 & 5¢
Cowell's, No. 1, 1/2 doz \$18.00 ; No. 2, \$15.00	
Rubber, complete, 1/2 doz \$4.50	55¢ & 10%
Hercules	50¢ & 5 & 10%

Carriage, Wagon, &c.—	
Elliptic, Concord, Platform and Half	
Scroil	60¢ & 10 & 10%
cliff's Bolster Springs	25¢

Squares—	
Steel and Iron, 1/2 in.	\$5 & 85 & 5¢
Nickel-Plated	
Try Square and T Bevels	60¢ & 10 & 10%
Dudson's Try Square and T Bevels	50¢
Winterbottom's Try and Miter	30¢ & 10%
Starrett's Micrometer Caliper Squares	25¢
Avery's Flush Bevel Squares	40¢
Avery's Bevel Protractor	50¢

Squeezers—	
Fodder—	
Baird's	1/2 doz \$2.00
Baird's "Climax"	1/2 doz \$1.25

Lemon—	
Porcelain Lined, No. 1... 1/2 doz \$6.00	
Wood, No. 2... 1/2 doz \$8.00	25 & 30%
Wood, Common... 1/2 doz \$10.00	17½
Dudson's Improved	1/2 doz \$3.75, 20%
Sammons, No. 1, \$6.00 ; No. 2, \$9.12	
\$18 1/2 doz	25½
Jennings' Star	1/2 doz \$2.50
The Boss	1/2 doz \$2.50
Dean's, Nos. 1, 1/2 doz \$1.50 ; 2, \$3.30 ; 3, \$1.90 ; Queen, \$2.50	40 & 35%
Little Giant	50¢ & 50 & 5½¢
King	50¢ & 50 & 5½¢
Hotchkiss Straight Flash	1/2 doz \$12.00
Silver & Co., Glass	1/2 doz \$12.00
Manny Lemon Juice Extractor	1/2 doz \$12.00
Standard	1/2 doz \$12.00
Improved	1/2 doz \$2.00

Standard Fiber Ware—	
See Ware, Standard Fiber.	

Staples—	
Blind—	
Barbed, 1/4 in. and larger	1/2 doz 7¢ & 14¢
Barbed, 1/4 in.	1/2 doz 8¢ & 16¢
Fence Staples, Galvanized	Same price
Fence Staples, Plain	1/2 doz 1/2 in. & 1/4 in. & 1/2 in. & 1/4 in.
See T'd. Rep.	

Steelyards	40 & 10 & 50¢
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Stocks and Dies—	
Blacksmith's	
Waterford Goods	35¢
Butterfield's Goods	35¢
Lightning Screw Plate	25¢ & 30¢
Reece's New Screw Plates	25¢ & 30¢
Reversible Ratchet	30¢
Gardner	25¢
Green River	25¢ & 30¢

Stops, Bench—

Morrell's	1/2 doz \$0.50
Hotchkiss's	1/2 doz \$5, 10¢ & 10½¢
Weston's, No. 1, \$10 ; No. 2, \$0, 25¢ & 10 & 5¢	
McGill's	1/2 doz \$3.
Cincinnati	25¢
Terrell's Nos. 1 and 2	1/2 doz \$3 ; No. 3, \$3.60
	30¢

Stone—**Sythe Stones—**

Pike Mfg. Co., list April, 1892	33½¢
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Oil Stones, &c.—

Pike Mfg. Co.	Price 1/2
Hindostan No. 1	8¢
Sand Stone	40¢
Turkey Oil Stone, 4 to 8	10¢
In	30¢
Turkey Slips	25¢
Washtita Stone, Extra	50¢
Washtita Stone, No. 1	40¢
Washtita Stone, No. 2	30¢
Washtita Slips, Extra	80¢
Washtita Slips, No. 1	70¢
Arkansas Stone, No. 1, 3 to 5	50¢
Arkansas Stone, No. 1 5½ to 8	100¢
Arkansas Stone, No. 1 5½ to 8	100¢

Lake Superior	1/2 doz 13¢
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Lake Superior Slips	1/2 doz 20¢
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Stove Polish—

See Polish, Stove.	
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Stretchers Carpet—

Cast Steel, Polished	1/2 doz \$2.2
Cast Iron, Steel Points	1/2 doz \$0.80
Socket	1/2 doz \$1.75
Bulard's	25¢ & 25 & 10%

Straps, Razor—

Genuine Emerson	80¢ & 60 & 5%
Imitation	1/2 doz \$2.00, 20¢ & 18½¢
Torrey's	20¢ & 15¢
Badger's Belt and Com.	1/2 doz \$2.00
Lamont Combination	1/2 doz \$4.00
Jordan's Pat. Padded, list Nov. 1, '89	50¢, 50¢
Electric Cutlery Co.	Net

Stuffer or Fillers, Sausage—

Miles' Challenge	1/2 doz \$20

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Washers—
Size hole..... 5-16 36 36 5% to 1%
Washers..... 6 5 3.50¢ 8
In lots less than 200 lb., per lb., add 1¢, 5 lb.
boxes 1¢ to list.

Wedges—

Iron..... 7¢ lb 34¢
Steel..... 7¢ lb 34¢

Weights, Sash—

Solid Eyes..... 7¢ ton \$18.00@\$19.00

Well Buckets Galvanized—
See Buckets, Well, Galvanized.**Wheels, Well—**

8 in., \$2.25; 10 in., \$2.70; 12 in., \$3.25

Wire and Wire Goods—

Iron—

Market, Br. & Ann'd, Nos. 0 to 18. 75¢@10¢@75¢@10¢@5%
Cop'd, Nos. 0 to 18. 75¢@5%

Galv., Nos. 0 to 18. 70¢@70¢@5%
Tin'd, Tin'd list, Nos. 0 to 18. 70¢@70¢@10%

Stone,

Br. and Ann'd, Nos. 16 to 18. 80¢
Bright and Ann'd, Nos. 19 to 26. 80¢@5%
Br. and Ann'd, Nos. 27 to 36. 82¢@5%
Tinned.....

Tinned Broom Wire, 18 to 21. 7¢ lb. 44¢

Galvanized Fence, Nos. 8 and 9. 70¢@10%

Brass, list Jan. 18, 1884. 25¢@33¢@5%

Copper, list Jan. 18, 1884. 33¢@40¢@5%

Annealed Wire on Spools. 60¢

Malin's Steel and Tin'd on Spools. 60¢

Malin's Brass and Cop. on Spools. 50¢

Tate's Spooled, Tin'd & Annealed. 60¢@5%

Tate's Spooled Cop. and Brass. 50¢

Cast Steel Wire. 50¢

Stub's Steel Wire. 40¢ to £. 30¢

Steel Music Wire, 12 to 30, Imported. 60¢@70¢ 7¢ lb

Wire Clothes Line, see Lines.

Wire Picture Cord, see Cord.

Bright Wire Goods—

Standard list. 80¢@20¢@85%

Wire Cloth and Netting—

Painted Screen Cloth, good quality. 70¢@10%

Galvanized Wire Netting. 75¢@75¢@10%

Wire, Barb—

See Trade Report.

Wire Rope— See Rope, Wire.**Wrenches—**

American Adjustable. 40¢

Baxter's Adjustable "S". 40¢@10¢@5%

Baxter's Diagonal. 60¢

Coe's Genuine. 50¢@3%

Coe's "Mechanics". 50¢@10¢@3%

Girard Standard. 65¢@10¢@70%

Lamson & Sessions' Engineers. 60¢@10%

Lamson & Sessions' Standard. 70¢@10%

C. S. & W. Agricultural. 70¢@10%

Girard Agricultural. 75¢@10¢@80%

Lamson & Sessions' Agric'l. 75¢@10¢@80%

Bemis & Call's:

Pat. Combination. 35¢

Merrick's Pattern. 35¢

Briggs' Pattern. 25¢

Cylinder or Gas Pipe. 40¢@5%

No. 3 Pipe. 40¢@10%

Aiken's Pocket (Bright). 40¢@10%

The Favorite Pocket. 7¢ doz. \$4.00, 40¢

Webster's Pat. Combination. 25¢

Boardman's. 30¢

Always Ready. 25¢@3%

Donohue's Engineer. 20¢@10%

Acme, Bright. 50¢@2%

Acme, Nickled. 40¢@2%

Hercules. 70¢@70¢@5%

Walker's. 55¢@3%

Diamond Steel. 55¢@3%

Cincinnati Brace Wrenches. 25¢@10%

Taft's Vise Wrench. 55¢@10¢@3%

Wringers, Clothes—

Am. Wringing Co.'s list, July 1, '92. 25¢ cash

Colby Wringing Co., list Sept. 1, '91. 25¢ cash

Lovell Mfg. Co., list Jan. 1, 1892. 25¢ cash

Peerless Mfg. Co., list Feb. 1, 1892. 25¢ cash

National Wringing & Mfg. Co., list June 1, 1892. 25¢ cash

June 1, 1892. 25¢ cash

Wrought Goods—

Staples, Hooks, &c., list March 17, 1892. 35¢@25¢

Paints, Oils and Colors.—Wholesale Prices.

Animal and Vegetable Oils—

Linseed, City, raw, per gal. 40¢

Linseed, City, boiled. 49¢

Linseed, Western, raw. 45¢

Lard, City, Extra Winter. 72¢

Lard, City, Prime. 70¢

Lard, City, Extra No. 1. 55¢

Lard, City, No. 1. 45¢

Lard, Western, prime. 70¢

Cotton-seed, Crude, prime. 28¢

Cotton-seed, Crude, off grades. 26¢@27¢

Cotton-seed, Summer Yellow, prime. 30¢@31¢

Cotton-seed, Summer Yellow, off grades. 29¢@30¢

Sperm, Crude. 68¢

Sperm, Natural Spring. 67¢@70¢

Sperm, Bleached Spring. 72¢@75¢

Sperm, Natural Winter. 73¢@76¢

Sperm, Bleached Winter. 78¢@81¢

Whale, Crude. 45¢@46¢

Whale, Natural Winter. 65¢@66¢

Whale, Bleached Winter. 58¢@59¢

Whale, Extra Bleached. 59¢@60¢

Sea Elephant, Bleached Winter. 62¢@63¢

Menhaden, Crude, Sound. 30¢@31¢

Menhaden, Crude, Southern. 30¢@31¢

Menhaden, Light Pressed. 37¢@38¢

Menhaden, Bleached Winter. 38¢@39¢

Menhaden, Extra Bleached. 40¢@42¢

Tallow, City, prime. 45¢@46¢

Tallow, Western, prime. 45¢@46¢

Cocoanut, Ceylon. 54¢@55¢

Cocoanut, Cochin. 6¢@6.5¢

Cod, Domestic. 38¢@40¢

Cod, Foreign. 42¢@45¢

Red Elaine. 34¢@36¢

Red Saponified. 4¢@5¢

Bank. per gal. 35¢@36¢

Black, 29 gravity, 25 @ 30 cold test. per gal. 7¢@7.5¢

Black, 29 gravity, 15 cold test. 7.5¢@8¢

Black, 29 gravity, summer. 6¢@6.5¢

Cylinder, light, filtered. 14¢@15¢

Paints and Colors—

Barytes, Foreign, lb. ton. 22¢@24¢@20¢

Barytes, Amer. floated. 29¢@32¢@20¢

Barytes, Amer. No. 1. 16¢@18¢@10¢

Barytes, Amer. No. 2. 13¢@16¢@10¢

Barytes, Amer. No. 3. 11¢@12¢@8¢

Blue, Celestial. 7¢ lb. 6¢@8¢

Blue, Chinese. 40¢@50¢@40¢

Blue, Prussian. 25¢@40¢@20¢

Blue, Ultramarine. 8¢@25¢@20¢

Brown, Spanish. 1¢@2¢@1¢

Brown, Vandyke, Amer. 3¢@3.5¢@3¢

Brown, Vandyke, English. 6¢@8¢@6¢

Carmine, No. 40, in bulk. 3.10¢@3.20¢@

Carmine, No. 40, in boxes or barrels. 3.20¢@

Carmine, No. 40, in ounce bottles. 4.20¢@

Chalk, in bulk. 1¢@1.40¢@1.75¢

Chalk, in bbls., per 100 lb. 33¢@40¢

China Clay, English. 7¢@13¢@18¢@16¢

Cobalt Oxide, prep'd. 9.00¢@11.00¢

Cobalt Oxide, black. 1.90¢@

Cobalt Oxide, black, lots 100 lb. 1.90¢@

Cobalt Oxide, black, less 100 lb. 1.90¢@

Cobalt Oxide, black, in oil. 1.90¢@

Kegs, lots less than 500 lb. 7.5¢@7.75¢@

Kegs, lots 500 lb. to 5 tons. 6.5¢@7.5¢@

Kegs, lots 5 tons to 12 tons. 6.5¢@6.75¢@

Kegs, lots 12 tons and over. 6.5¢@6.75¢@

Lead, White, in oil, 25 lb. tin pails, add to keg price. 14¢@16¢@14¢

Lead, White, in oil, 12½ lb. tin pails, add to keg price. 14¢@16¢@14¢

Lead, White, in oil, 1 to 5 lb. assorted tins, add to keg price. 14¢@16¢@14¢

Lead, Eng., B.R. white. 8¢@10¢@10¢

Lead, Ann. White, dry or in oil. 14¢@16¢@14¢

Kegs, lots less than 500 lb. 7.5¢@7.75¢@

Kegs, lots 500 lb. to 5 tons. 6.5¢@7.5¢@

Kegs, lots 5 tons to 12 tons. 6.5¢@6.75¢@

Kegs, lots 12 tons and over. 6.5¢@6.75¢@

Lead, White, in oil, 25 lb. tin pails, add to keg price. 14¢@16¢@14¢

Lead, White, in oil, 12½ lb. tin pails, add to keg price. 14¢@16¢@14¢

Lead, White, in oil, 1 to 5 lb. assorted tins, add to keg price. 14¢@16¢@14¢

Lead, Red, bbls. and ½ bbls. 6.5¢@7.5¢@

Lead, Red, kegs. 6.5¢@7.5¢@

Litharge, kegs. 6.5¢@7.5¢@

Litharge, bbls. and ½ bbls. 6.5¢@7.5¢@

TERMS, &c.—Lead and Litharge.—On lots of 500 lb. or over, 60 days' time or 2½% discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle. 1.35¢@1.1¢

Ocher, French Washed. 1.1¢@1.2¢

Ocher, German Washed. 1.1¢@1.2¢

Ocher, American. 1.1¢@1.2¢

Orange Mineral, English. 8¢@9¢@8¢

Orange Mineral, French. 10¢@10%@10%

Orange Mineral, German. 8¢@9¢@9¢

Orange Mineral, American. 8¢@9¢@9¢

Paris White, English Chalk. stone. 1.00¢@1.15¢

Paris White, American. 6.5¢@7.5¢

Red, Indian, English. 5¢@6¢@7¢

Red, Indian, American. 5¢@6¢@7¢

Red, Tuscan. 9¢@11¢@11¢

Red, Venetian, American. 1.00¢@1.10¢@1.10¢

Red, Venetian, English. 1.20¢@1.35¢

Sienna, Italian, Burnt and Powd. 4¢@5¢

Sienna, Italian, Raw, Lumps. 1.25¢@1.35¢

Sienna, Italian, Raw, Powd. 1.25¢@1.35¢

Sienna, Italian, Raw, Lumps. 1.25¢@1.35¢

Sienna, American, Burnt and Powdered. 1.25¢@1.35¢

Tale, French. 1.25¢@1.35¢

Tale, American. 1.25¢@1.35¢

Terra Alba, Frch. 1.00¢@1.15¢@1.25¢

Terra Alba, English. 70¢@80¢@90¢

Terra Alba, American No. 1. 65¢@75¢@85¢

Terra Alba, American No. 2. 45¢@50¢@60¢

Umber, Turkey, Burnt and Powdered. 1.25¢@1.35¢

Umber, Turkey, Burnt, and ½ bbls. 1.25¢@1.35¢

Umber, Turkey, Burnt, and in tubs. 1.25¢@1.35¢

Umber, Turkey, Burnt, and in cans. 1.25¢@1.35¢

Umber, Turkey, Burnt, and in bladders. 1.25¢@1.35¢

Umber, Turkey, Burnt, and in barrels. 1.25¢@1.35¢

Umber, Turkey, Burnt, and in tubs. 1.25¢@1.35¢

CURRENT METAL PRICES.

NOVEMBER 9, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL— Bar Iron from Store—

Common Iron:	
1/4 to 2 in. round and square	2 lb 1.00 @ 2.00
1 to 6 in. x 3/4 to 1 in.	
1 to 4 in. x 3/4 to 1 in.	2 lb 2.00 @ 2.10
4 1/2 to 6 in. x 3/4 to 1 in.	
1 to 6 in. x 1 1/4 and 5-16	2 lb 2.20 @ 2.30
Rods 1/4 and 11-16 round and sq.	2 lb 2.10 @ 2.20
Bands 1 to 8-16 to No. 12	2 lb 2.30 @ 2.40
"Burden Best" Iron, base price	2 lb 3.00
Burden's "H. & S." Iron, base price	2 lb 2.80
"Ulster"	2 lb 3.00
Norway Bars	3.75 @ 4.00
Norway Shapes	4.50 @ 5.00

Merchant Steel from Store—

Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2 1/4
Best Cast Steel, base price in small lots	8
Best Cast Steel Machinery, base price in small lots	5

Sheet Iron from Store—

Black	Common R. G. Cleaned American.
Nos. 10 to 16	2 lb 3 @ 3 1/4
17 to 20	2 lb 3 1/4 @ 3 1/4
21 to 24	2 lb 3 1/4 @ 3 1/4
25 and 26	2 lb 3 1/4 @ 3 1/4
27	2 lb 3 1/4 @ 3 1/4
28	2 lb 3 1/4 @ 4

Galvanized Sheet Iron—

B. B.	
Nos. 10 to 16	2 lb 4.20
17 to 22	2 lb 4 1/2
23 to 24	2 lb 4 1/2
25 to 26	2 lb 5
27	2 lb 5 1/2
28 to 30	2 lb 6 1/2

English Steel from Store—

Best Cast	2 lb 15
Extra Cast	2 lb 16 @ 17
Swaged, Cast	2 lb 15
Best Double Shear	2 lb 12
Blister, 1st quality	2 lb 12
German Steel, Best	2 lb 10
2d quality	2 lb 9
3d quality	2 lb 8
Sheet Cast Steel, 1st quality	2 lb 15
2d quality	2 lb 14
3d quality	2 lb 13 1/2
R. Musket's "Special"	2 lb 48
" " " " " Annealed	2 lb 75
" " " " " Titanic	2 lb 20

METALS—

Tin—	Per lb
Banca, Pigs	22
Straits, Pigs	21 1/4 @ 21 1/4
Straits in Bars	23

Tin Plates—

Duty: 2 1/4 lb.	
Charcoal Plates—Bright—	
Guaranteed Plates command special prices, according to quality.	Per box.
Melyn and Calland Grade, IC, 10 x 14	@ 26.50
" " " " " IC, 12 x 12	6.75
" " " " " IC, 14 x 20	6.50
" " " " " IC, 20 x 28	13.00
" " " " " IX, 10 x 14	8.50
" " " " " IX, 12 x 12	8.75
" " " " " IX, 14 x 20	8.50
" " " " " IX, 20 x 28	17.00
" " " " " DC, 12 x 17	6.00
" " " " " DX, 12 x 17	8.00
Allaway Grade, IC, 10 x 14	6.00
" " " " " IC, 12 x 12	6.25
" " " " " IC, 14 x 20	6.00
" " " " " IC, 20 x 28	12.00
" " " " " IX, 10 x 14	7.60
" " " " " IX, 12 x 12	7.75
" " " " " IX, 14 x 20	7.50
" " " " " IX, 20 x 28	15.00
" " " " " DC, 12 x 17	5.50
" " " " " DX, 12 x 17	7.00

Coke Plates—Bright—	
Steel Coke, IC, 10 x 14, 14 x 20	\$5.50 @ \$5.00
10 x 20	8.50
20 x 28	11.50 @ 12.00
IX, 10 x 14, 14 x 20	7.00

BV Grade, IC, 10 x 14, 14 x 20	5
Charcoal Plates—Terne—	
Guaranteed Plates command special prices according to quality.	
Dean Grade, IC, 14 x 20	\$5.75
20 x 28	11.00 @ 11.25
IX, 14 x 20	6.50
20 x 28	13.00
Abecarne Grade, IC, 14 x 20	5.65
20 x 28	11.00
IX, 14 x 20	6.50
20 x 28	13.00

Tin Boiler Plates—	
IXX, 14 x 26	@ \$18.35
IXX, 14 x 28	14.50
IXX, 14 x 31	@ 16.00

American Terne Plates—Apollo.	
IC, 14 x 20	\$6.25
IC, 20 x 28	12.50
IX, 14 x 20	7.25
IX, 20 x 28	14.50

DUTY: Pig, Bar and Ingot, 1 1/4%; Old Copper, 1 1/2%. Manufactured (including all articles of which Copper is a component of chief value), 35% ad valorem.

Ingot—

Asonia grade Arizona @ 11 1/4

Asonia grade Casting @ 11

Prices adopted by the Association of Copper Manufacturers of the United States, May 19, 1892. Subject to a discount of 10% @ 20%, according to size of order.

Weights per sq. foot and prices per pound.

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